Marking Schemes

Paper 1
Section A

Question No.	Key
1.	A (78%)
2.	D (29%)
3.	D (14%)
4.	A (65%)
5.	C (26%)
6.	B (56%)
7.	C (65%)
8.	B (74%)
9.	D (70%)
10.	D (51%)
11.	B (83%)
12.	B (20%)
13.	C (89%)
14.	A (45%)
15.	C (93%)
16.	A (65%)
17.	B (60%)
18.	A (80%)
19.	C (85%)
20.	D (55%)

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

Section B Question 1

		Marks
(a)	Merits: (At least 1; max. 3)	
	- simple/ easy to use	1
	- appropriate explanation/ further elaboration of 'simple', such as no instruments/ training/ skills required	1
	- quantified data for analysis	1
	Demerits: (At least 1; max. 3)	
	- subjective	1
	- appropriate explanation/ further elaboration of 'subjective', such as by impression/ by observation/ from personal perspectives	1
	- items assessed too general/ too few items for assessment	1
	- scale of scoring too narrow	1 (4)
(b)	Merits: (At least 1; max. 3)	
	- simple	1
	- systematic sampling	1
	- at regular interval	1
	- objective/ free from bias	1
	Demerits: (At least 1; max. 3)	
	- sampling along a road only	1
	- inadequate coverage	1
	- inadequate samples of some land uses (only one for recreational land use)	1
	- no samples of commercial and institutional land uses	1 (4)

(c)

Data processing (Max. 3)	- calculate total scores of environmental quality for each field study site (1) - categorise field study sites according to their land uses (1) - calculate the mean scores of environmental quality for each land use type (1) - present the mean scores of environmental quality of different land use types (1) with a bar graph (1)
Hypothesis testing (1)	- compare the mean score of environmental quality of industrial land use with those of other land uses/ compare the scores on the graph (1)

(Max. 4)

(d)
- Data collection methods to raise the validity:
  - using appropriate instruments to collect data, e.g. noise level, air quality
  - improving design of assessment form by increasing the number of assessment items and using more specific assessment items
  - using questionnaire/ interview to collect opinions of residents
- Data collection methods to raise the reliability:
  - increasing number of samples/ field study sites
  - selecting field study sites from the whole area
  - using more appropriate sampling methods such as stratified sampling
  - collecting data at different time (peak/ non-peak hours; day/ night time)

Marking Criteria:

- Communicate ideas and express views logically - Describe and explain in greater detail two or more of the above methods (including validity and reliability), demonstrating good knowledge and understanding of field study design	6
- Communicate ideas and express views clearly - Describe and explain appropriately one or more of the above methods, demonstrating adequate knowledge and understanding of field study design	3 – 5
- Communicate simple ideas - Describe and explain briefly one or two of the above methods, demonstrating elementary to basic knowledge and understanding of field study design	1 – 2

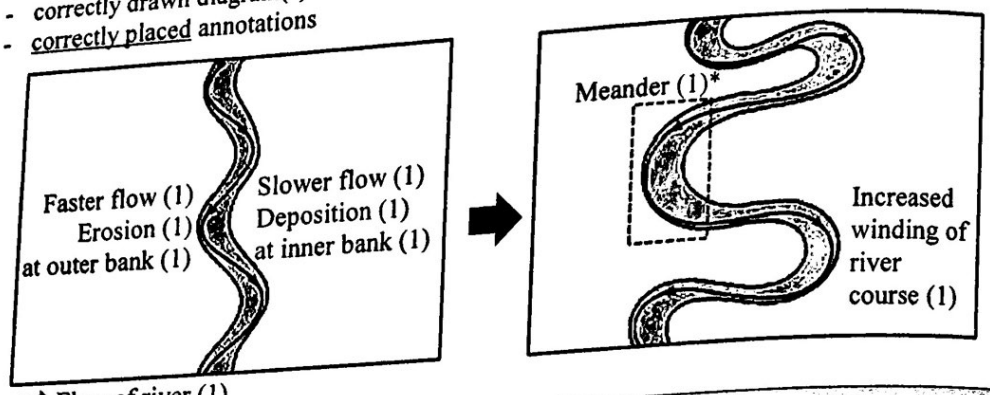
Max. 18

Section C

Question 2

Marks

(a) - fluvial feature: meander (* **either** written in the answer **or** labelled in the diagram) 1
- correctly drawn diagram(s) showing changes from a winding to a meandering river course 1
- correctly placed annotations 4 (6)



b) (i)

Explanation	Map evidence
- gentle gradient (1) - slows down river flow (1)	- widely spaced contour lines at Lam Tsuen Valley (1) - meandering river course in grid square 0585/ 0586 (1)
- large catchment area (1) - increase in discharge at times of heavy rainfall (1)	- joining of tributaries from Tai Mo Shan to Tai To Yan at 047850 (1)
- lives threatened/ property damaged by flooding (1)	- settlements/ farmland along Lam Tsuen River (1)

(Max. 5)

(ii)
- straightening of river channel 1
- reducing friction 1
- increases velocity of river flow 1
- gabions 1
- protecting river bank from erosion 1
- reducing silting 1
- increases water holding capacity 1 (3)

(iii) Relevant concepts:
- cost effectiveness
- physical settings: risk of flooding, environmental impacts
- human settings: land use along river, density of development

Marking criteria:

- **Logical** and well-elaborated explanation(s)/ argument(s) demonstrating good **knowledge** of relevant geographical concepts and with reference to the **information** provided (map evidence) - Correct identification of river management strategies - With appropriate **judgement**	4
- A sound explanation/ argument demonstrating adequate knowledge of relevant geographical concepts in greater detail with reference to the **information** provided (map evidence), *OR* - Two or more appropriate explanations/ arguments demonstrating adequate knowledge of relevant geographical concepts	3
- An appropriate explanation/ argument demonstrating basic knowledge of relevant geographical concepts, *OR* - Two or more brief explanations/ arguments demonstrating basic knowledge of relevant geographical concepts	2
- One brief explanation/ argument demonstrating elementary knowledge of relevant geographical concepts only	1

Max. 18

Question 3

Marks

(a)

	Description	Explanation
Urumqi	- in NW/ interior/ remote area of China (1)	- abundant raw materials nearby (1) - railway transport linked to the market/ eastern coastal cities (1)
Shanghai	- at eastern/ coastal region (1)	- cheap sea transport at coastal location (1) - bulk carriers facilitate import of raw materials and export of goods (1) - linked with coal mine & iron ore by railways/ rivers (1) - large market of iron and steel products in big city (1) - scrap iron from urban areas (1)

(Max. 4 marks for each plant) (Max. 6)

(b) (i)
- multi-point production 1
- scattered production units 1
- global supply chain 1
- assembling of components from different suppliers 1 (2)

(ii)

Description	Explanation
- headquarters and R & D centres in more developed regions (1)	- well-educated labour (1) - expertise/ talent pool (1) - agglomeration economies (1)
- production of components in more developed regions (1)	- production of high-end components in more developed regions (1) - higher technology/ skilled workers required (1)
- production of components and assembling mainly at less developed regions (1)	- labour intensive in assembling (1) - lower labour cost in less developed regions (1) - lower production cost of low-end components (1)

(Max. 6)

) Relevant concepts:
- cost effectiveness of adopting multi-point production
- different nature of the industries: processing industry versus fabrication industry; manufacturing processes
- differences in the importance of locational factors, such as market and life cycle of products; government policy; raw materials (bulk and weight); value-addedness of products
- industrial inertia and relocation cost

Marking criteria:

- **Logical** and well-elaborated explanation(s)/ argument(s) demonstrating good **knowledge** of relevant geographical concepts and with reference to the **information** provided - With appropriate **judgement**	4
- A sound explanation/ argument demonstrating adequate knowledge of relevant geographical concepts in greater detail with reference to the **information** provided, *OR* - Two or more appropriate explanations/ arguments demonstrating adequate knowledge of relevant geographical concepts	3
- An appropriate explanation/ argument demonstrating basic knowledge of relevant geographical concepts, *OR* - Two or more brief explanations/ arguments demonstrating basic knowledge of relevant geographical concepts	2
- One brief explanation/ argument demonstrating elementary knowledge of relevant geographical concepts only	1

Max. 18

Question 4 Marks

(a) (i)
- nomadic herding — 1 (1)
- extensive farming/ low input of technology/ low input of labour — 1
- practising transhumance — 1
- searching for water and pasture — 1
- small number of livestock/ drought-tolerant livestock — 1
- subsistence farming — 1 (3)

(ii) Physical setting: (Max. 5)
- high evaporation rate — 1
- induced by high temperature — 1
- low annual rainfall/ uneven distribution of rainfall/ summer rain only — 1
- inadequate water supply — 1
- sparse vegetation cover — 1
- low carrying capacity of land — 1
- limits number of livestock — 1
- low farm productivity/ low farm output — 1

Human setting: (Max. 2)
- low farming technology — 1
- unable to overcome physical constraints — 1 (6)

(b) (i)
- storage of water in reservoirs/ behind dams — 1
- water transfer by aqueducts/ rivers — 1
- increase water input/ provision of stable irrigation water — 1
- increasing area of arable land — 1
- extending growing period into dry season — 1
- more intensive farming — 1 (4)

(ii) Relevant concepts:
- agricultural system: inputs, such as water, capital and technology, government policy, etc.; outputs, such as cash crops, arable crops, animal products, etc.
- opportunities and limitations of shifting from animal rearing to crop growing; extensive to intensive farming; subsistence to commercial farming
- pros and cons of exporting cash crops and importing food crops
- various causes of food shortage problem

Marking criteria:

- **Logical** and well-elaborated explanation(s)/ argument(s) demonstrating good **knowledge** of relevant geographical concepts and with reference to the **information** provided - With appropriate **judgement**	4
- A sound explanation/ argument demonstrating adequate knowledge of relevant geographical concepts in greater detail with reference to the **information** provided, *OR* - Two or more appropriate explanations/ arguments demonstrating adequate knowledge of relevant geographical concepts	3
- An appropriate explanation/ argument demonstrating basic knowledge of relevant geographical concepts, *OR* - Two or more brief explanations/ arguments demonstrating basic knowledge of relevant geographical concepts	2
- One brief explanation/ argument demonstrating elementary knowledge of relevant geographical concepts only	1

Max. 18

Question 5

Marks

(a)

Description: (Max. 2)	Explanation: (Max. 4)
- high density of plants - complex structure/ layers of vegetation - tall trees - with broad crown	- high temperature all year round - high annual rainfall/ high rainfall all year round - rainfall evenly distributed/ no dry season - favourable conditions for plant growth - plants can grow all year round/ are fast-growing - plants compete for sunlight

(Max. 6)

(b) (i)

- reducing amount of nutrients stored in biomass (X) — 1 (1)
- rainforest cleared/ burnt — 1
- output of nutrients from biomass to soil as ash — 1
- from biomass to atmosphere as smoke — 1
- grassland with lower density/ smaller size of plants — 1
- cattle sent to market — 1
- output of nutrients from cattle ranch — 1 (3)

(ii)

- reduction of litter — 1
- reduction of bacterial decomposition — 1
- less nutrients released from litter to soil (Y) — 1
- soil compaction by animal trampling — 1
- reducing infiltration of water/ increasing surface runoff — 1
- increasing soil erosion — 1
- increasing nutrients loss — 1
- low inputs of artificial fertilisers — 1 (4)

c) Relevant concepts:

- feasibility of abandoning cattle ranch: socio-economic impacts, different interests (e.g. transnational corporations)
- possibility and ability of restoring cattle ranch to primary forest: factors affecting succession, time to regenerate, species
- possibility to develop ecotourism: biodiversity, time for growing of trees
- economic return from cattle ranching versus ecotourism

Marking criteria:

- Logical and well-elaborated explanation(s)/ argument(s) demonstrating good **knowledge** of relevant geographical concepts and with reference to the **information** provided - With appropriate **judgement**	4
- A sound explanation/ argument demonstrating adequate knowledge of relevant geographical concepts in greater detail with reference to the **information** provided, *OR* - Two or more appropriate explanations/ arguments demonstrating adequate knowledge of relevant geographical concepts	3
- An appropriate explanation/ argument demonstrating basic knowledge of relevant geographical concepts, *OR* - Two or more brief explanations/ arguments demonstrating basic knowledge of relevant geographical concepts	2
- One brief explanation/ argument demonstrating elementary knowledge of relevant geographical concepts only	1

Max. 18

Section D

Question 6

Describe and explain how earthquakes and volcanic eruptions occur at convergent plate boundaries. Discuss whether land use zoning is more effective in reducing loss resulting from volcanic eruptions than that of earthquakes.

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	
Describe and explain how earthquakes and volcanic eruptions occur at convergent plate boundaries	
Relevant concepts: • Convergent plate boundary: direction of plate movement • Different processes at convergent plate boundaries as a result of different nature of plates: oceanic, continental plates • Occurrence of earthquakes at convergent plate boundaries: from accumulation of energy to release of pressure • Occurrence of volcanic eruptions at convergent plate boundaries: from subduction of plates to eruption	
Performance of Candidates	**Marks**
• Comprehensive knowledge and understanding of plate tectonics processes at different convergent plate boundaries • Systematic and logical description and explanation of the occurrence of earthquakes and volcanic eruptions at convergent plate boundaries	6
• Adequate to good knowledge of plate tectonic processes at convergent plate boundaries • Appropriate description and explanation of the occurrence of earthquakes and volcanic eruptions at convergent plate boundaries, such as subduction of plates and volcanic eruption, fracturing and release of pressure • Award higher marks to more systematic and/ or more in-depth descriptions/ explanations	3 – 5
• Elementary to basic knowledge of plate tectonics processes at convergent plate boundaries • Brief description of direction of plate movement • Brief description/ explanation of the occurrence of earthquakes and volcanic eruptions	1 – 2
Discuss whether land use zoning is more effective in reducing loss resulting from volcanic eruptions than that of earthquakes	
Relevant concepts: • Uses of land use zoning in reducing loss: mapping of hazard-prone areas, density of development, restrictions, location of rescue and emergency facilities • Losses: property, life • Factors affecting effectiveness: frequency, nature of hazards, scale, magnitude and intensity, identification of hazard-prone areas (lava flow, pyroclastic flow, active faulting zone, amplified shaking in areas with sediments, etc.) • Secondary hazards, such as landslides, tsunamis	
Performance of Candidates	**Marks**
• Comprehensive knowledge of land use zoning in reducing loss • Clear and sound discussion with appropriate judgement referring to factors affecting effectiveness • Systematic and logical presentation of ideas and views	6
• Adequate to good knowledge of land use zoning, such as land use mapping, development density, population density • Appropriate discussion with reference to the nature/ scale, etc. of the two hazards • Award higher marks to more systematic and/ or more in-depth discussion	3 – 5
• Elementary to basic knowledge of land use zoning • Brief and general discussion of simple ideas, such as restriction of development	1 – 2
	Max. 12

Question 7

Account for the decay of the old urban areas in Hong Kong. Discuss whether redevelopment is the most appropriate urban renewal strategy in these areas.

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	
Account for the decay of the old urban areas in Hong Kong	
Relevant concepts: • Early development with lower building standard/ outdated town planning and design, inadequate facilities and infrastructure • Deterioration of buildings and increasing maintenance cost • Causes of urban decay, such as suburbanisation, relocation of population and economic activities to new towns and suburbs and moving in of low income residents, subdivided flats, etc.	
Performance of Candidates	**Marks**
• Comprehensive knowledge and understanding of the causes and process of urban decay • Apply effectively the concepts of urban decay to appropriate case in Hong Kong • Clear and logical description and explanation of the causes of urban decay	6
• Adequate to good knowledge and understanding of the causes and process of urban decay • Apply appropriately the concepts of urban decay • Appropriate description and explanation of the causes of urban decay • Award higher marks to more accurate and detailed descriptions and explanations	3 – 5
• Elementary to basic knowledge and understanding of the causes and process of urban decay • Brief description/ explanation of the causes of urban decay, such as long history of development, old buildings, etc.	1 – 2
Discuss whether redevelopment is the most appropriate urban renewal strategy in these areas	
Relevant concepts: • Comprehensive redevelopment and single block redevelopment • Sustainability: economic, environmental and social aspects • Pros and cons of redevelopment and alternate urban renewal strategies, e.g. rehabilitation, revitalisation, etc.	
Performance of Candidates	**Marks**
• Comprehensive knowledge and understanding of urban renewal strategies and sustainability • Discussion of the relative pros and cons of urban redevelopment versus other urban renewal strategies with reference to the concept of sustainability (social/ economic/ environmental impacts) • Clear, systematic and logical discussion with sound judgement	6
• Adequate to good knowledge and understanding of redevelopment and urban renewal strategies • Appropriate discussion of the pros and cons of urban redevelopment/ and some alternate urban renewal strategies • Award higher marks to more in-depth and detailed discussion	3 – 5
• Elementary to basic knowledge and understanding of redevelopment • Brief description and explanation of the advantages of redevelopment, such as open space, new buildings	1 – 2
	Max. 12

Question 8

Account for the rising trend of global greenhouse gas emissions since the 1950s. Discuss whether technology can help slow down the rising trend of atmospheric greenhouse gases.

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

Account for the rising trend of global greenhouse gas emissions since the 1950s

Relevant concepts:

- Human activities emitting greenhouse gases: industrial, transport, power generation, agricultural, etc.
- Greenhouse gases (GHGs): carbon dioxide, methane, chloroflurocarbons (CFCs), etc.
- Causes of rising greenhouse gas emissions since the 1950s:
  - population growth and increasing demand; economic development and rising living standard; oil-based economy and wide use of petroleum by-products; globalisation and international trade; exploitation of global natural resources and deforestation, etc.

Performance of Candidates	Marks
• Comprehensive knowledge and understanding of the causes of the rising trend of global GHG emissions since the 1950s, with insight of essential concepts such as oil-based economy, globalisation and international trade • Systematic and logical description and explanation	6
• Adequate to good knowledge and understanding of the causes of the rising trend of global GHG emissions since the 1950s • Appropriate description and explanation of the causes of the rising trend of global GHG emissions since the 1950s, such as industrial development, urbanisation, exploitation of natural resources, technology development • Award higher marks to more in-depth and/ or systematic descriptions/ explanations	3 – 5
• Elementary to basic knowledge and understanding of the causes of the rising trend of global GHG emissions since the 1950s • Brief description/ explanation of simple ideas	1 – 2

Discuss whether technology can help slow down the rising trend of atmospheric greenhouse gases

Relevant concepts:

- Technology to reduce emissions: alternative energy, energy saving technology, increase energy efficiency, alternative measures/ materials used, etc.
- Technology to capture and store greenhouse gases (GHGs)
- Effectiveness and limitations of technology
- Importance of other factors: international cooperation, transfer of technology, sustainable lifestyle and consumption pattern, etc.

Performance of Candidates	Marks
• Comprehensive knowledge and understanding of different measures to slow down the rising trend of atmospheric GHGs • Discussion with reference to other factors that may affect the effectiveness of technology in slowing down the rising trend of atmospheric GHGs, such as consumption pattern, willingness to adopt sustainable lifestyle, etc. • Systematic and logical discussion with sound judgement	6
• Adequate to good knowledge of the measures to slow down the rising trend of atmospheric GHGs • Appropriate discussion of the uses and limitations of the technology to slow down the rising trend of atmospheric GHGs • Award higher marks to more systematic and/ or more in-depth explanations	3 – 5
• Elementary to basic knowledge of the measures to slow down the rising trend of atmospheric GHGs • Describe briefly the use of some technology to slow down the rising trend of atmospheric GHGs, such as the use of renewable energy	1 – 2
	Max. 12

Section E

Question 1

Marks

(a) Measure P:
- debris barrier/ check dam — 1 (1)
- reducing ditch velocity/ rate of surface runoff/ regulating flow of water — 1
- trapping sediments — 1 (1)

Measure Q:
- soil nails — 1 (1)
- anchoring soil to the slope — 1
- increasing shear strength of slope — 1 (1)

(b)

	Description (Max. 2 marks)	Explanation (Max. 4 marks)
Climate	- hot and wet climate in Hong Kong (1)	- favours chemical weathering (1) - to a great depth/ deep regolith (1) - produces large amount of weathered materials (1)
Relief	- steep slope (1)/ height (1)	- increases gravitational force (1) - increases shear stress (1) - high resistance of rocks (1)

(Max. 6)

(c)
- shear stress greater than shear strength — 1
- accumulation of rainfall on 6 and 7 June — 1
- intense rainfall on the day of the hazard — 1
- increasing runoff — 1
- saturated soil — 1
- pore water pressure increased — 1
- increased weight of slope material — 1 (4)

(d) Relevant concepts:
- effectiveness of the measure
- suitability to the site
- scale of the hazard
- nature of the slope
- cost/ expenditure

Marking criteria:

- **Logical** and well-elaborated explanation(s)/ argument(s) demonstrating good **knowledge** of relevant geographical concepts and with reference to the **information** provided - With appropriate **judgement**	4
- A sound explanation/ argument in greater detail with reference to the **information** provided, *OR* - Two or more appropriate explanations/ arguments in greater detail	3
- An appropriate explanation/ argument in greater detail, *OR* - Two or more brief explanations/ arguments	2
- One brief explanation/ argument only	1

Max. 18

Question 2

Marks

(a) (i)
- X: trade winds — 1
- Y: westerlies — 1
- Z: polar easterlies — 1 (3)

(ii)
- under the pressure gradient force
- winds blow from subtropical highs to equatorial low — 1
- forming northeast trade winds in the northern hemisphere — 1
- forming southeast trade winds in the southern hemisphere — 1
- but changed to southwest trade winds when crossing the equator — 1
- under Coriolis force — 1
- winds deflected to the right of their path of motion in the northern hemisphere — 1
- winds deflected to the left of their path of motion in the southern hemisphere — 1 (5)

(b) Description:
- wind direction of Hong Kong under the influence of planetary wind X: northeasterly — 1
- wind direction of Hong Kong in Figure 2b: southeasterly — 1 (2)

Explanation:
- Hong Kong under the influence of the monsoon system
- summer in the northern hemisphere — 1
- Asian landmass absorbs heat faster — 1
- low pressure cell develops over Asian landmass — 1
- high pressure cell develops over the ocean — 1
- winds blow from ocean to land due to pressure gradient — 1 (4)

c) Relevant concepts/ explanations:
- Difference in wind speed: (At least 1)
  - weather system P is a tropical cyclone over the sea south of Hong Kong*
  - more closely-spaced isobars of weather system P resulting in a steeper pressure gradient
  - wind speed was higher on 31 July (12.5 m/s)
- Difference in wind direction: (At least 1)
  - weather system P is a tropical cyclone over the sea south of Hong Kong*
  - air moved towards the low pressure centre (996 hPa) of weather system P
  - winds rotated anti-clockwise due to Coriolis force
  - wind direction changed from southeast to northeast

* Award mark **once only** to this concept

Marking criteria:

- **Logical** and well elaborated explanation(s) demonstrating good **knowledge** of relevant geographical concepts and with reference to the **information** provided - Comprehensive understanding of anti-clockwise wind movement in tropical cyclone and the effect of Coriolis force - Clear and precise description of the differences in wind speed and direction between the two days	4
- A sound explanation in greater detail with reference to the **information** provided, *OR* - Two or more appropriate explanations in greater detail	3
- An appropriate explanation in greater detail, *OR* - Two or more brief explanations	2
- One brief explanation only	1

Max. 18

Question 3 **Marks**

(a)
- passenger percentage of railways rising continuously — 1
- passenger percentage of franchised buses falling continuously — 1
- passenger percentage of franchised buses higher than railways from 2002 to 2010 — 1
- passenger percentage of franchised buses lower than railways from 2011 to 2018 — 1 (3)

(b) (i)
- less affected by road traffic/ traffic congestion/ other transportation modes — 1
- fast/ efficient — 1
- higher passenger load — 1
- more reliable/ punctual — 1 (3)

(ii)
- railway lines increased — 1
- railway network density increased — 1
- coverage of railways expanded — 1
- connecting newly developed new towns, e.g. Tuen Mun/ Yuen Long/ Ma On Shan/ Tseung Kwan O/ Tung Chung — 1
- large number of commuters between new towns and urban areas — 1 (4)

(c)
- passenger load of railways oversaturated/ approaching saturation — 1
- congested environment at some lines/ interchange stations during peak hours — 1
- waiting time lengthened — 1 (2)

(d) (i)
- urban routes: decreasing/ higher decreasing rate for Hong Kong Island routes — 1
- cross harbour routes increasing — 1
- higher increasing rates for routes via Western and Eastern Harbour Crossings — 1 (2

(ii) Relevant concepts/ arguments:
- Pros:
  - merits of franchised buses: higher flexibility of route and frequency adjustments/ providing point-to-point services/ more choices of routes/ less changing of routes/ lower fares
  - features of franchised bus services: providing services to areas outside railway network coverage/ relieving some railway lines with saturated passenger loads
- Cons:
  - demerits of franchised buses: affected by road traffic conditions/ one of the causes of traffic congestion

Marking criteria:

- **Logical** and well-elaborated explanation(s)/ argument(s) demonstrating good **knowledge** of relevant geographical concepts and with reference to the **information** provided - With appropriate **judgement**	4
- A sound explanation/ argument in greater detail with reference to the **information** provided, *OR* - Two or more appropriate explanations/ arguments in greater detail	3
- An appropriate explanation/ argument in greater detail, *OR* - Two or more brief explanations/ arguments	2
- One brief explanation/ argument only	

Ma

Question 4

Marks

(a) (i)
- all three air pollutants decreasing steadily below the national standard
- nitrogen dioxide and respirable suspended particulates higher than the national standard from 2006 to 2010 — 1
- reduction in sulphur dioxide most prominent — 1

1 (2)

- pH value of rainwater improving
- pH value of rainwater approaching neutral in 2018 — 1

1 (1)

(ii)
- large share of fossil fuels
- coal remaining as major fuel — 1
- share of coal falling (decreased by about 12 % from 2006 to 2018) — 1
- share of oil/ natural gas rising — 1
- increasing importance of hydro-electric, nuclear power and renewable energy — 1

1 (3)

(iii)
- decreasing coal usage reduced sulphur dioxide emissions/ positive relationship
- coal and oil emit large amount of sulphur dioxide, nitrogen dioxide and RSP — 1
- levels of nitrogen dioxide and RSP higher than national standard in 2006 — 1
- use of higher quality oil — 1
- increase use of natural gas — 1
- lowered the level of air pollutants — 1

1 (4)

(iv)
- rainwater acidity approaching normal from 2016 onwards
- less coal consumption resulted in less emission of sulphur dioxide/ nitrogen dioxide — 1
- use of natural gas producing less sulphur dioxide/ nitrogen dioxide — 1
- zero emission of air pollutants from nuclear power and renewable energy — 1
- sulphur dioxide/ nitrogen dioxide as condensation nuclei — 1
- less pollutant dissolved in rainwater — 1
- rainwater acidity lowered/ acid rain decreased in strength — 1

1 (4)

(b) Relevant concepts/ arguments:
- different energy consumption levels between low polluting and high polluting industries
- high polluting industries, e.g. metal smelting and pressing, could be highly polluting, especially the use of blast furnaces
- low polluting industries, e.g. computer, communication and electronic equipment manufacturing, use mainly electricity generated by cleaner energy
- other users of fossil fuels, e.g. vehicles and power stations are major causes of air pollution

Marking criteria:

- **Logical** and well-elaborated explanation(s)/ argument(s) demonstrating good **knowledge** of relevant geographical concepts and with reference to the **information** provided - With appropriate **judgement**	4
- A sound explanation/ argument in greater detail with reference to the **information** provided, *OR* - Two or more appropriate explanations/ arguments in greater detail	3
- An appropriate explanation/ argument in greater detail, *OR* - Two or more brief explanations/ arguments	2
- One brief explanation/ argument only	1

Max. 18

Section F

Question 5

Describe and explain the formation of clastic sedimentary rocks. Explain how sedimentary rocks shape the landforms in the northeastern part 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	
Describe and explain the formation of clastic sedimentary rocks	
Relevant concepts: • Denudation of rocks • Processes of sedimentation; compaction and cementation; lithification	
Performance of Candidates	**Marks**
• Correct and detailed description and explanation of the formation of clastic sedimentary rocks • Able to mention the pre-existing materials produced by weathering and erosion • Able to mention the processes of sedimentation, compaction, cementation and lithification • Provided comprehensive examples of clastic sedimentary rocks: conglomerate, breccia, sandstone, siltstone and shale	6
• Appropriate understanding of the formation of clastic sedimentary rocks • Able to mention the processes of the formation of clastic sedimentary rocks • Provided a few examples of clastic sedimentary rocks • Award higher marks to answer with more detailed descriptions	3 – 5
• Brief description of the formation of clastic sedimentary rocks • No/ Irrelevant explanations	1 – 2
Explain how sedimentary rocks shape the landforms in the northeastern part of Hong Kong	
Relevant concepts: • General relief in the northeastern part of Hong Kong • Characteristics of sedimentary rocks and their resistance to denudation processes • Distribution of sedimentary rocks in the northeastern part of Hong Kong and their associated landforms	
Performance of Candidates	**Marks**
• Comprehensive knowledge of the distribution of sedimentary rocks in the northeastern part of Hong Kong, including Pat Sin Leng, Port Island and Ping Chau • Coherent and logical explanation of how sedimentary rocks shape the landforms in the northeastern part of Hong Kong based on their resistance and structure • Able to explain how the resistance of rocks produces different landforms in the northeastern part of Hong Kong	6
• General knowledge of the distribution of sedimentary rocks in the northeastern part of Hong Kong, e.g. Pat Sin Leng • Appropriate explanation of how sedimentary rocks shape the landforms in the northeastern part of Hong Kong based on their resistance • Award higher marks to answer with more detailed explanations	3 – 5
• Brief description of the landforms associated with sedimentary rocks in the northeastern part of Hong Kong • No/ Irrelevant explanation of how sedimentary rocks shape the landforms in the northeastern part of Hong Kong	1 – 2
	Max. 12

Question 6

Account for the physical factors favouring the occurrence of sandstorms in North China. Discuss the effectiveness of shelter forest programme in tackling sandstorms in North China.

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

Account for the physical factors favouring the occurrence of sandstorms in North China

Relevant concepts/ explanations:

- Winter monsoon brings strong winds to North China in late winter/ early spring
- High evapotranspiration/ drought, very low annual rainfall
- Barren land surface provides sand and dust
- Natural sources of sand and dust in northern and northwestern parts of China
- Loose soil easily lifted into the air by strong winds

Performance of Candidates	Marks
• Detailed descriptions and correct explanations of the physical factors favouring the occurrence of sandstorms in North China • Accurate and comprehensive knowledge of the physical conditions in North China, such as: climatic conditions of the season that favours the occurrence of sandstorms in North China; natural sources of sand and dust, e.g. Taklamakan Desert and Gobi Desert; tracks of sandstorms in North China	6
• Adequate knowledge of the physical factors favouring the occurrence of sandstorms in North China, such as: season of occurrence of sandstorm in North China; occurrence of strong winds; sources of sand and dust • Award higher marks to answers with more correct explanations and concepts	3 – 5
• Brief description of the physical factors favouring the occurrence of sandstorms in North China • No/ Irrelevant explanation of the influences of such factors	1 – 2

Discuss the effectiveness of shelter forest programme in tackling sandstorms in North China

Relevant concepts/ arguments:

- Strengths of shelter forest programme:
  - acts as a barrier to lower wind velocity and sandstorms; protects barren surface and holds soil particles together; reduces impact of sandstorms to major cities in North China, such as Beijing
- Limitations of shelter forest programme:
  - shelter belt can hardly trap fine particles in times of sandstorms; plant species have to be carefully selected to better adapt to the semi-arid climate; strong winter monsoon still persists and leads to dry climate and deserts in North China, restricting protected areas

Performance of Candidates	Marks
• Coherent and logical discussion of the effectiveness of shelter forest programme in tackling sandstorms in North China • Accurate and comprehensive knowledge of the strengths and limitations of the programme, such as: scale of/ time needed for the shelter forest programme; species planted (monoculture plantations reduce the effectiveness of the programme); limitations of the programme in relation to the climate of the regions	6
• Correct understanding of shelter forest programme, such as the locations of the programme (North, Northeast and Northwest China) • Appropriate discussion of the effectiveness of shelter forest programme in tackling sandstorms in North China, such as: acting as barriers to lower wind velocity and reduce strength and impact of sandstorms in North China • Award higher marks to answers mentioning both the strengths and limitations of the programme	3 – 5
• Brief description of the shelter forest programme only • No/ Irrelevant discussion of the effectiveness of this programme in tackling sandstorms in North China	1 – 2
	Max. 12

Question 7

Account for the advantages of the Hong Kong International Airport as the regional air transportation hub. Discuss whether the completion of the third runway may help the Hong Kong International Airport to maintain those advantages.

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	
Account for the advantages of the Hong Kong International Airport as the regional air transportation hub	
Relevant concepts: • one of world's important air traffic focal points • linked with global, regional and local destinations • large hinterland of cargo transport • good locational advantages	
Performance of Candidates	**Marks**
• Comprehensive and accurate knowledge of the advantages of the Hong Kong International Airport as the regional air transportation hub • Detailed explanation of both the site and regional advantages of Hong Kong	6
• Adequate knowledge of the advantages of the Hong Kong International Airport as the regional air transportation hub • Appropriate explanation of the site or regional advantages of Hong Kong • Award higher marks to answers with correct explanations of more advantages	3 – 5
• Brief description of the site or regional advantages of the Hong Kong International Airport as the regional air transportation hub	1 – 2
Discuss whether the completion of the third runway may help the Hong Kong International Airport to maintain those advantages	
Relevant concepts: • The completion of the third runway may help Hong Kong to maintain the advantages: - increasing the handling capacity of the airport - benefited from the passenger and freight demand of ZDR and the world • The completion of the third runway may not help Hong Kong to maintain the advantages: - competition with Guangzhou and Shenzhen airports - overlapping with hinterlands of Guangzhou and Shenzhen airports - limitation of air space resulted from overlapping air routes with the Mainland	
Performance of Candidates	**Marks**
• Coherent and logical discussion of whether the completion of the third runway may help the Hong Kong International Airport to maintain the advantages as the regional air transportation hub • Discussion of multiple perspectives	6
• Appropriate discussion of whether the completion of the third runway may **or** may not help the Hong Kong International Airport to maintain the advantages as the regional air transportation hub • Award higher marks to answers with discussion from more perspectives	3 – 5
• Brief description of the influences of the completion of the third runway on the Hong Kong International Airport as the regional air transportation hub	1 – 2
	Max. 12

Question 8

Account for the favourable physical factors of agricultural development in the Zhujiang Delta Region. Discuss the impacts of rapid urbanisation on agricultural development in the region since the 1990s.

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	
Account for the favourable physical factors of agricultural development in the Zhujiang Delta Region	
Relevant concepts: • Climate: hot and wet/ subtropical monsoon climate; long growing season; no frost in winter • Relief: lowland; parcels of flat land around river delta • Drainage: dense river network provides sufficient irrigation water • Soil: fertile alluvial soil at river delta and estuary	
Performance of Candidates	**Marks**
• Comprehensive understanding and knowledge of the favourable physical factors of agricultural development in ZDR	6
• Adequate knowledge of the favourable physical factors of agricultural development in ZDR • Citing relevant examples with in-depth explanation, e.g. different types of crops, multiple cropping • Award higher marks to answers mentioning more factors	3–5
• Brief description of the favourable physical factors of agricultural development in ZDR	1–2
Discuss the impacts of rapid urbanisation on agricultural development in the region since the 1990s	
Relevant concepts: • Positive impacts: - specialisation and intensification of production for profit-maximisation - promotes branding of cash crops • Negative impacts: - urban expansion leading to reduction of farmland - declining number of farm labour - with the rise in living standard, local agriculture faces competition from imported agricultural products	
Performance of Candidates	**Marks**
• Coherent, logical and in-depth discussion of the impacts of rapid urbanisation on agricultural development in ZDR since the 1990s • Clear stance in discussion with appropriate examples	6
• Appropriate discussion of the impacts of rapid urbanisation on agricultural development in ZDR since the 1990s • Award higher marks to answer with more correct explanations	3–5
• Brief description of the impacts of rapid urbanisation on agricultural development in ZDR • Limited knowledge of urbanisation in ZDR since the 1990s	1–2
	Max. 12