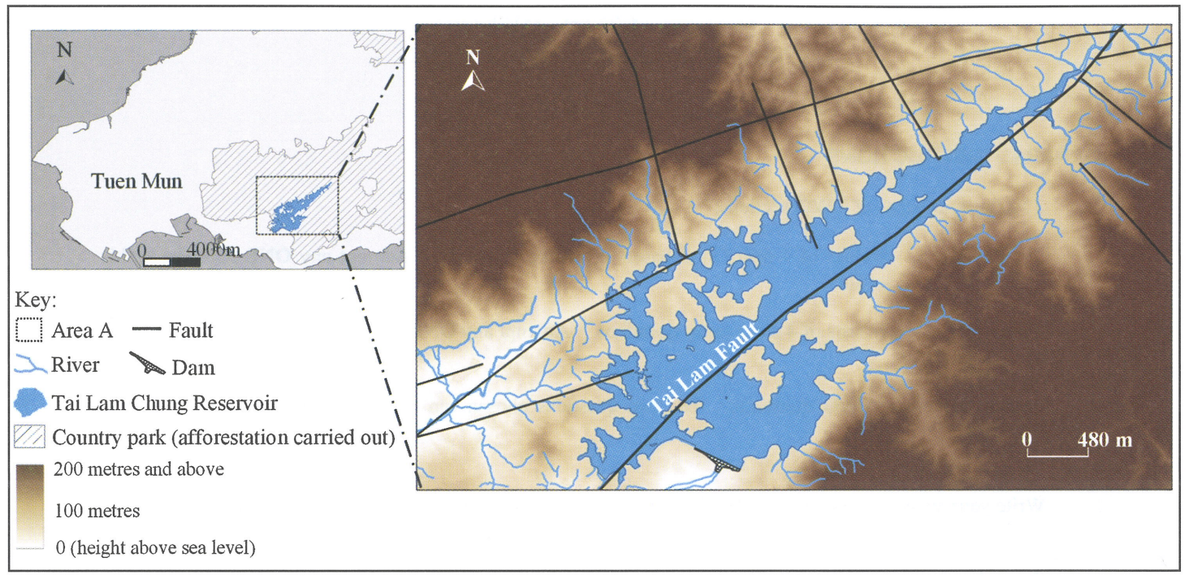
Section D: Answer any ONE question from this section. Each question carries 18 marks.

1. **Elective: Dynamic Earth**

Figure 1a shows the location of area A. Photograph 1b shows a landform feature found in area A. Figure 1c shows a specimen and the structure of a kind of igneous rock found in area A. Figure 1d shows some information about the rainfall characteristics in Hong Kong.

Figure 1a



Photograph 1b

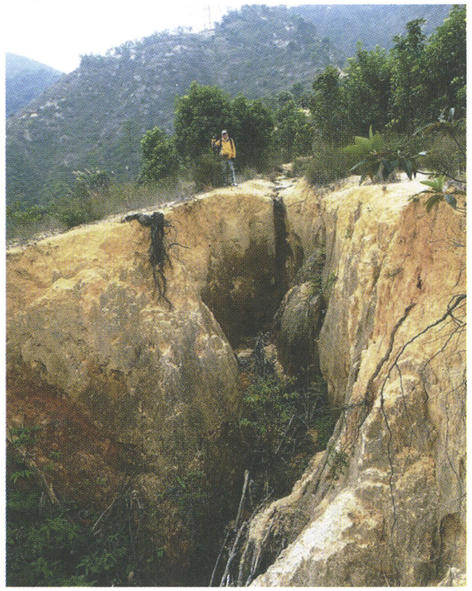


Figure 1c

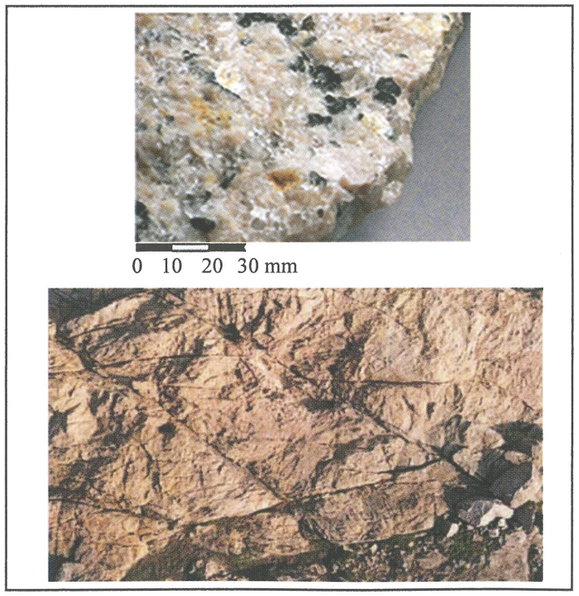
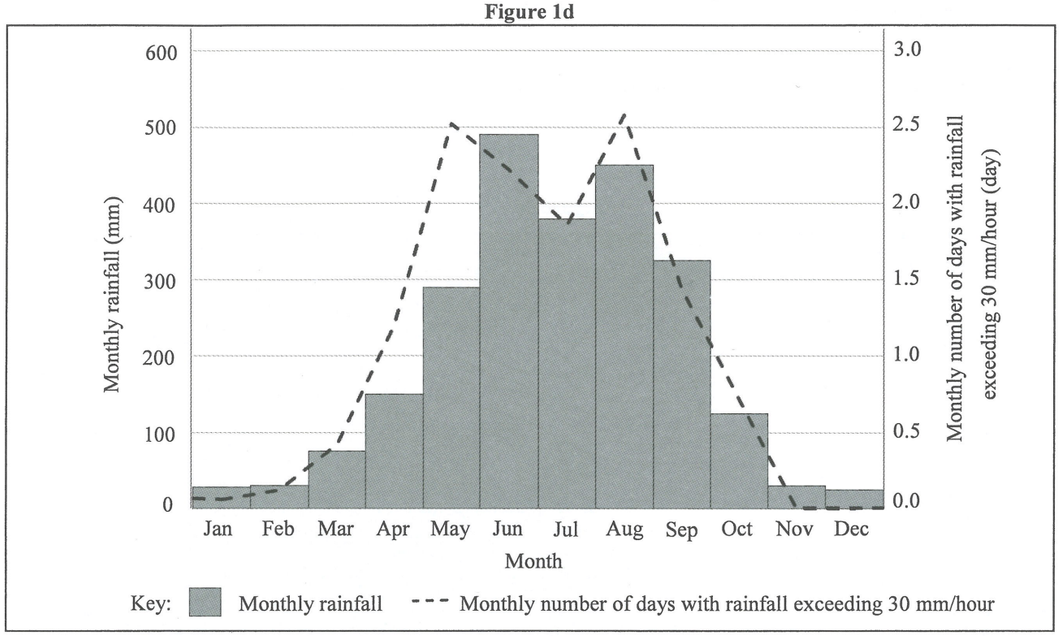


Figure 1d



(a) Refer to Figure 1a.

(i) Describe the orientation of Tai Lam Fault. (1 mark)

(ii) Explain how the faulting system shapes the physical landscape of area A. (5 marks)

(b) Refer to Photograph 1b, Figure 1c and Figure 1d. With reference to

(i) the geological characteristics of the area, and (4 marks)

(ii) the rainfall characteristics of Hong Kong, (4 marks)

account for the formation of the landform feature shown in Photograph 1b.

(c) Refer to Figure 1a, Photograph 1b and Figure 1c. Comment on the impact of human activities on the physical landscape in area A. (4 marks)

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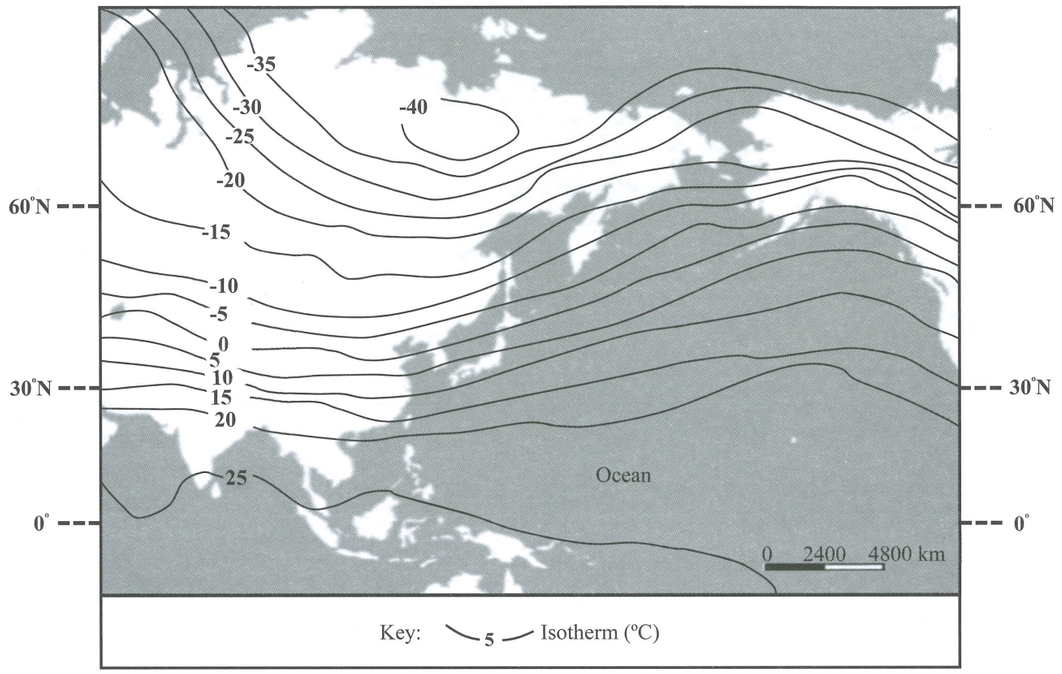
2. Elective: Weather and Climate

Figure 2a shows the distribution of mean sea-level temperature in a particular month. Figure 2b shows some weather data of China and its surrounding areas on a particular day in the same month.

Figure 2a

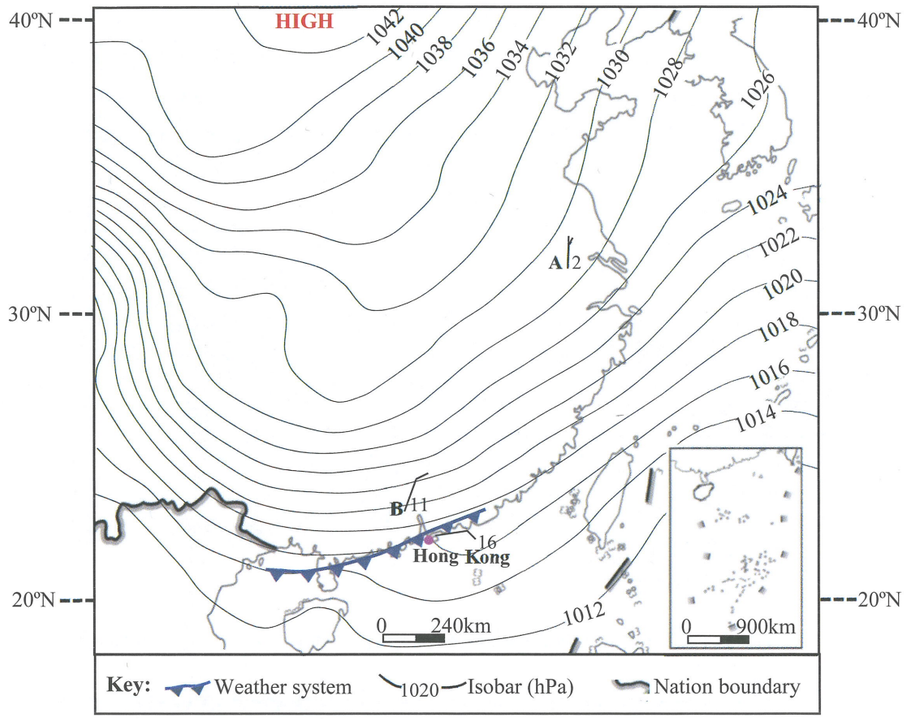


(a) Refer to Figure 2a.

(i) In which season is the northern hemisphere? (1 mark)

(ii) Describe and explain the temperature distribution pattern in the northern hemisphere. (6 marks)

Figure 2b



(b) Refer to Figure 2b.

(i) Contrast the wind direction and wind speed in cities A and B. (3 marks)

(ii) Explain the answer in (b)(i) with reference to the pressure system shown in the figure. (4 marks)

(c) Refer to Figure 2b. Hong Kong is close to city B. Explain why the temperature and precipitation in Hong Kong are different from those of city B on the same day. (4 marks)

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3. Elective: Transport Development, Planning and Management

Figure 3a shows the number of different types of passenger-carrying vehicles in Hong Kong in 2011 and 2021 and a graph showing the estimated road space used by different vehicles. Figure 3b shows some information about population and traffic flow in district A of Hong Kong, and the land use in the town centre of the district. Photograph 3c shows the common traffic conditions on road Y during rush hours.

Figure 3a

	2011	2021
Private cars	471 685	656 973
Public buses	12 892	13 162
Public light buses	4 350	4 349
Taxi	18 138	18 163
Total	507 065	692 647
Total road length (km)	2 086	2 193

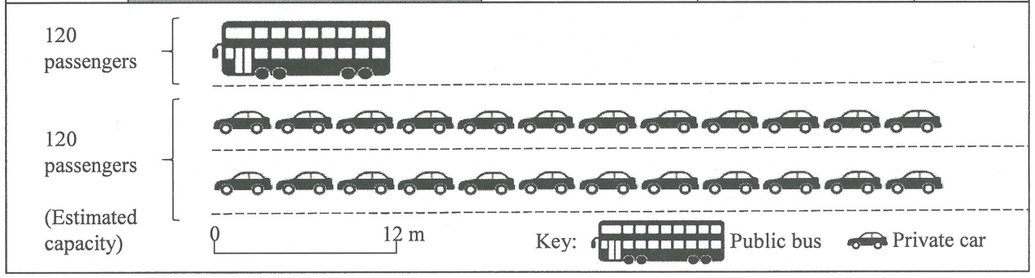
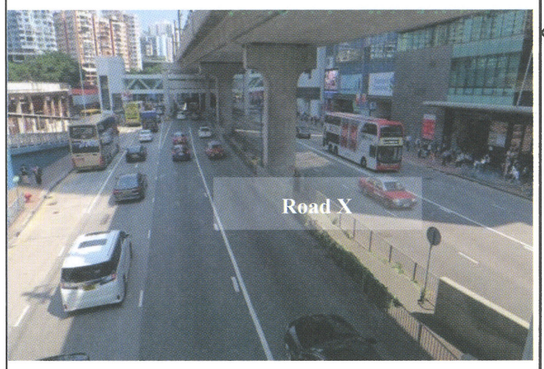
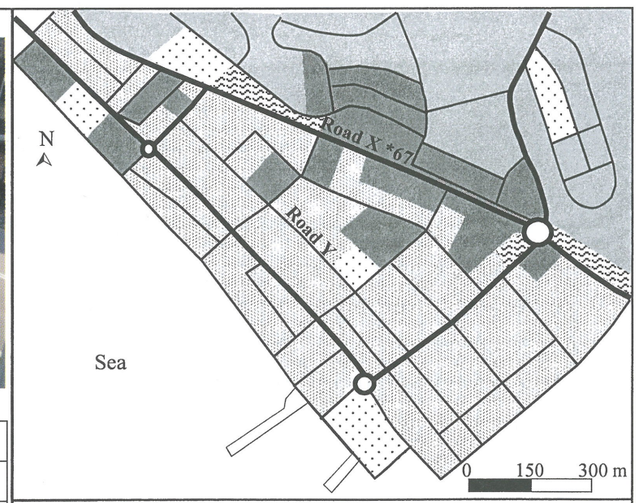


Figure 3b



		2009	2019
Population of district A	**Residential**	594 400	688 500
	Working	300 300	352 300
Traffic flow of road X (Number of vehicles)		53 740	82 320



Photograph 3c

(a) Refer to Figure 3a.

(i) Compare the growth of the number of passenger-carrying vehicles and the total road length in Hong Kong between 2011 and 2021. (3 marks)

(ii) State the advantages of public buses over private cars on the use of road space. Explain your answer. (3 marks)

(b) According to a public opinion survey, 80.2% of residents in district A agreed that the traffic in the town centre of the district was 'very congested'.
Refer to Figure 3b. Explain why the traffic problem occurred in the town centre of district A. (5 marks)

(c) Refer to Photograph 3c. Suggest road traffic management measures that may ease the traffic congestion problem at road Y. (3 marks)

(d) Refer to Figure 3a, Figure 3b and Photograph 3c.
To improve the traffic conditions in district A, it has been proposed to develop the bus-rapid transit along road X. Discuss the feasibility of the proposal. (4 marks)

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4. Elective: Regional Study of Zhujiang (Pearl River) Delta

Figure 4a shows the rate of cultivated land loss and the changes of built-up area in the Zhujiang Delta Region between 2000 and 2020. Table 4b shows some socio-economic information about Foshan. Figure 4c shows the practice at Flower Production Centre A located in Foshan.

Figure 4a

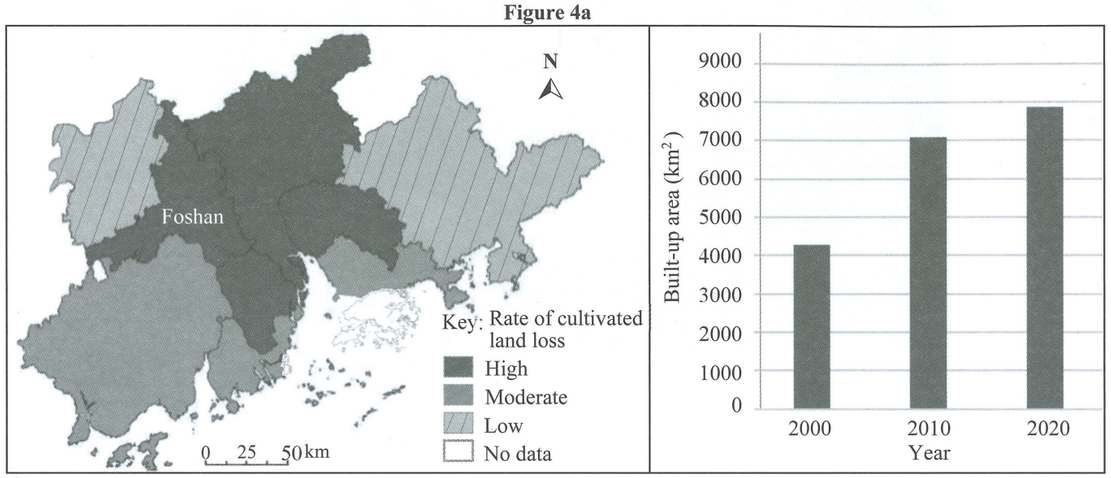

Table 4b

		2000	2008	2018
GDP per capita (RMB)		20 231	68 666	128 216
Share of GDP (%)	**Primary industry**	5.9	2.2	1.4
	Secondary and tertiary industries	94.1	97.8	98.6
Major farm products (% share in total output)	**Rice**	17.1	6.4	4.7
	Vegetables and fruits	82.9	93.6	95.3
Total cultivated area of rice, vegetables and fruits (hectares)		138 074	82 192	42 906
Farming labour (% of population)		No data	7.0	3.6
Total highway length (km)		3 528	5 089	5 265
Agricultural policy		- Help farmers obtain bank loans - Provide farm work training to farmers		

Figure 4c

Annual revenue (RMB) in 2019	2 billion
Major markets	Japan, European countries, the US and local market
Facilities and other activities	- Flower theme park - Flower exhibitions

Farming technology X used in Flower Production Centre A

(a) Refer to Figure 4a. Describe and explain the changes in cultivated land in Zhujiang Delta Region between 2000 and 2020. (4 marks)

(b) Refer to Figure 4a and Table 4b. Describe and explain the changes in the output of the major farm products in Foshan between 2000 and 2018. (4 marks)

(c) (i) Refer to Figure 4a and Table 4b. What are the major challenges faced by the agriculture in Foshan? (2 marks)

(ii) Refer to Table 4b and Figure 4c. Explain how the practice at Flower Production Centre A helps the farmers in Foshan tackle these challenges. (4 marks)

(d) Refer to Table 4b and Figure 4c. Discuss whether farming technology X may be applied to the cultivation of major farm products in Foshan. (4 marks)

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Section E: Answer any ONE question from this section. Each question carries 12 marks.

5. **Elective: Dynamic Earth**

Account for the influence of rainfall on the occurrence of landslides in Hong Kong. Discuss the effectiveness of engineering measures in mitigating landslides caused by rainfall in Hong Kong.

(12 marks)

6. **Elective: Weather and Climate**

Account for the physical factors leading to the occurrence of drought in North China. Discuss the effectiveness of the South-to-North Water Diversion Project as the solution to the drought problem in North China in the long run.

(12 marks)

7. **Elective: Transport Development, Planning and Management**

Describe the characteristics of transit-oriented development. Discuss the significance of transit-oriented development in affecting urban expansion in Hong Kong.

(12 marks)

8. **Elective: Regional Study of Zhujiang (Pearl River) Delta**

Account for the changes in land use pattern from rural-agricultural dominant to urban-industrial dominant in the Zhujiang Delta Region since the 1980s. Discuss the impact of urban-industrial dominant development on the environmental conditions in the region since 2000.

(12 marks)

END OF PAPER

Sources of materials used in this paper will be acknowledged in the *HKDSE Question Papers* booklet published by the Hong Kong Examinations and Assessment Authority at a later stage.