

HKDSE Geography Paper 1 Mock Paper (10 questions, 100 marks, 105 minutes)

中四至中六 (S4 – S6) Geography | 時限：105 分鐘 | 總分：100 分 | 共 10 題

Section A (Questions 1 to 5, 50 marks)

Answer ALL questions. A calculator and the formula booklet may be used. Show your working, give numerical answers to the accuracy required, and state units in every final answer. All data are examples and this is not a past paper of any examination board.

1. A district has an area of 42 km² and a population of 336,000. Five years later the population is 352,800. (a) Find the population density (persons per km²). (b) Find the total population growth over the five years and the average annual growth rate (2 decimal places). (c) The age structure is: 0-14 years 50,400, 15-64 years 252,000, 65 years and over 33,600. Find the dependency ratio (1 decimal place).
2. A catchment of 300 km² receives 120 mm of rain in a storm. (a) Find the total volume of rain falling on the catchment (m³). (b) If 60% becomes runoff and is discharged evenly over 24 hours, find the mean discharge (m³ s⁻¹, 1 decimal place). (c) After urbanisation the peak discharge for the same rainfall rises from 40 m³ s⁻¹ to 62 m³ s⁻¹. Find the percentage increase and explain it.
3. The map scale is 1 : 20,000. Points A and B are 4.5 cm apart on the map. A is 120 m high and B is 300 m high. (a) Find the actual horizontal distance between A and B (m). (b) Find the gradient from A to B as 1 : n and as a percentage. (c) Another section measures 3.6 cm on the map with the same height difference. Find its gradient and judge whether it is suitable for building (gradients of 1 : 4 or steeper are not).
4. Weather station A at the foot of a hill is 20 m above sea level with a temperature of 28.5 °C. Station B on the summit is 1,020 m above sea level. The lapse rate is 6.5 °C per 1,000 m. (a) Find the temperature at B (1 decimal place). (b) At station A the air contains 17.3 g m⁻³ of water vapour and the saturation value at 28.5 °C is 23.0 g m⁻³. Find the relative humidity (1 decimal place). (c) At night the temperature falls to 20.0 °C, when the saturation value is 17.3 g m⁻³. Find the relative humidity and state whether fog forms.
5. A farm of 24 hectares yields 5.5 tonnes of rice per hectare, sold at \$4,200 per tonne. Total annual production cost is \$310,000. (a) Find the annual output and total revenue. (b) Find the annual profit and the profit per hectare (whole dollars). (c) A new variety raises the yield by 20%; the price is unchanged but costs rise by 10%. Find the new profit and compare it with the original.

Section B (Questions 6 to 10, 50 marks)

Answer ALL questions. A calculator and the formula booklet may be used. Show your working, give numerical answers to the accuracy required, and state units in every final answer. All data are examples and this is not a past paper of any examination board.

6. Waves on a coast have a wavelength of 80 m and a period of 10 s. (a) Find the wave speed, and the factor by which wave energy rises when refraction increases the wave height from 0.8 m to 2.4 m. (b) Longshore drift averages 2.5 m per year. Find the total drift over 40 years. (c) A groyne is built there. Explain its effect on the beaches updrift and downdrift.

7. A manufacturer compares monthly costs in Hong Kong and the Pearl River Delta. Hong Kong: rent \$180,000, 120 workers at \$16,000 each per month. PRD: rent \$28,000, the same number of workers at \$4,500 each. (a) Find the total monthly cost in each place. (b) Find the monthly and annual saving from relocating, and the percentage saved (1 decimal place). (c) Apart from cost, give two reasons why a manufacturer may stay in Hong Kong or keep high-value activities there.

8. A power station has a installed capacity of 1,200 MW and an average annual capacity factor of 65%. (a) Find the average output (MW) and the annual generation (MWh, 3 significant figures). (b) If a household uses 4,800 kWh a year, find the number of households served (3 significant figures). (c) If each kWh emits 0.70 kg of carbon dioxide, find the annual emissions in million tonnes (3 significant figures).

9. A railway line is 32 km long with 16 stations. Trains average 34 km/h and stop for 0.5 minutes at each station. (a) Find the running time and the total journey time including stops (minutes, 1 decimal place). (b) The same trip by car averages 18 km/h. Find the driving time and the time saved by rail. (c) A rail ticket costs \$12 and driving costs \$28 per trip. A commuter makes a return trip on 22 working days a month. Find the monthly saving.

10. A class surveys plants on a 100 m² lawn using quadrats of 0.5 m by 0.5 m, 20 quadrats in total, with a mean of 6.4 plants per quadrat. (a) Find the area of one quadrat and the percentage of the site sampled (1 decimal place). (b) Find the plant density (plants per m²) and the estimated total for the whole site (whole number). (c) A second lawn has a mean of 4.8 per quadrat. Find its estimated total and the percentage difference between the two sites (1 decimal place).