Exercise walk-through

3.7
Option: Urban environments

International Baccalaureate · IB Diploma · Geography · HL

How the options are examined

- In Paper 1 each option has 20 marks.
- The first part is a set of short **structured questions** (10 marks), often about a map, graph or table.
- Then you choose one of two essays (10 marks).
- SL students answer two options in 1 hour 30 minutes; HL students answer three in 2 hours 15 minutes.

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Extreme environments

- **Extreme environments** are cold (high mountains, polar and glacial areas) or dry (hot deserts).
- Ice erodes valleys into a U shape and leaves piles of rock called **moraines** .
- In hot deserts, wind builds dunes and rare flash floods cut steep valleys called wadis.
- People see these places as both **opportunities** (minerals, tourism, solar energy, scientific research) and **challenges** (cold or heat, little water, poor access, a fragile environment).

Check yourself

- 1.
- Why do urban areas usually have a shorter **lag time** than rural ones? 2.
- Give one hard and one soft strategy for managing a coast, with a problem of each. 3.
- The 2010 Haiti earthquake (magnitude 7.0) killed far more people than the shaking of the much stronger 2011 Tōhoku earthquake (magnitude 9.0).

Exercise 2.1

2.1 Distinguish between **urbanization** and **urban growth**. [2]



share in cities



number in cities

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share in cities



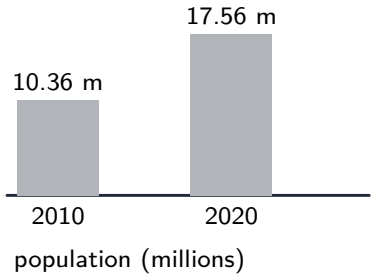
number in cities

2.1

urbanization: an increase in the **proportion** of a country's people living in urban areas; urban growth: an increase in the **number** of people living in urban areas

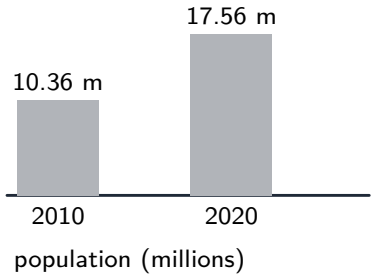
Exercise 2.2

2.2 Shenzhen had 10.36 million people in the 2010 census and 17.56 million in 2020. Calculate the percentage growth, and give **one** reason for it. [3]



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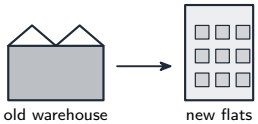
$\frac{17.56 - 10.36}{10.36} \times 100 \approx \mathbf{69.5}\ \%$; any one: migrants attracted by jobs in factories, technology and services / the Special Economic Zone and foreign investment

Exercises 2.3·2.4

2.3 State **two** causes of the urban heat island. [2]



2.4 Explain how urban regeneration can lead to **gentrification**. [3]



Exercises 2.3·2.4

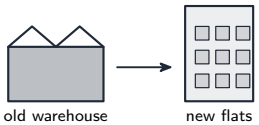
2.3 State **two** causes of the urban heat island. [2]



2.3

any two: concrete, tarmac and brick store heat by day and release it at night; less vegetation and water to cool the air; heat from traffic, buildings and air conditioners; pollution traps heat

2.4 Explain how urban regeneration can lead to **gentrification**. [3]



2.4

regeneration improves an old area with new homes, shops and parks; the area becomes attractive to richer people, so house prices and rents rise; poorer residents can no longer afford to stay and are pushed out (gentrification)

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Exercise 2.5

2.5 Evaluate road pricing (congestion charging) as a way to reduce traffic in cities. [4]



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2.5

drivers pay to enter the centre at busy times, e.g. Singapore (1998), London (2003); fewer cars, faster journeys and cleaner air, and the money can fund public transport; but it is unpopular, and it costs poorer drivers more of their income; it works best with good public transport, so people have another way to travel

Exercise 3.1 (a)

3.1 *(Paper 1 style.)* The graph shows night-time air temperatures measured along a line across a city.

(a) Calculate the difference in temperature between the city centre and the countryside, and identify **one** place that does not fit the overall pattern. [2]

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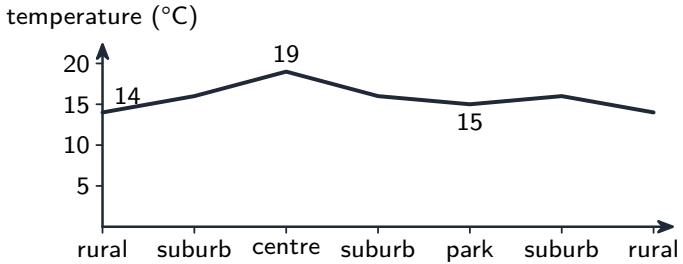
(a) Calculate the difference in temperature between the city centre and the countryside, and identify **one** place that does not fit the overall pattern. [2]

(a) $19 - 14 = \mathbf{5}$ °C; the park, cooler (15 °C) than the suburbs around it

Exercise 3.1 (b)

3.1 *(Paper 1 style.)* The graph shows night-time air temperatures measured along a line across a city.

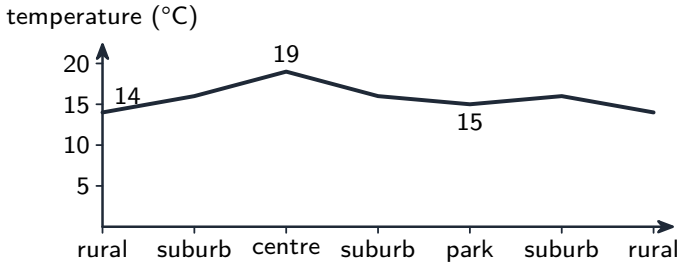
(b) Explain **two** reasons why the city centre is warmer at night. [4]



Exercise 3.1 (b)

3.1 *(Paper 1 style.)* The graph shows night-time air temperatures measured along a line across a city.

(b) Explain **two** reasons why the city centre is warmer at night. [4]



(b) any two, explained: concrete, tarmac and brick absorb heat by day and release it slowly at night; tall buildings trap heat and block wind, so warm air is not mixed away; heat from traffic, buildings and air conditioners adds energy to the air; less vegetation and water, so less cooling by evaporation

Exercise 3.2

3.2 Evaluate the success of strategies used to make cities more sustainable. [10]

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3.2

Mark with the markbands: [9-10] focused on the command term, detailed and accurate knowledge, well-developed explanation, specific named examples (places, dates, numbers), balanced evaluation and a supported conclusion; [7-8] mostly focused, good knowledge and examples, some evaluation; [5-6] relevant knowledge and examples, explanation partly developed, little evaluation; [3-4] general knowledge, few examples, mostly description; [1-2] little that is relevant. Points that may be included: public transport: metro systems in Chinese cities carry millions a day and cut car use; but they are very expensive and take years to build; road pricing in Singapore and London reduced traffic in the centre; but it is unpopular and costs poorer drivers more; green space and sponge-city parks cool the city and store rain; but they need valuable land, and the 2021 Zhengzhou rain

was beyond the design; regeneration reuses old industrial land instead of farmland at the edge; but it can cause gentrification, so it is less sustainable socially; informal settlements need housing and services, which no single strategy solves; conclusion: strategies work best together and when they are fair to poorer residents; environmental success can hide social costs