3.7 Option: Urban environments

Name: _____ Class: _____ Date: _____ **Total: 30 marks**

KEY WORDS urbanization • megacity • urban stress • urban heat island • informal settlement • urban regeneration • gentrification

Objective

Build the skills to answer Paper 1 questions on the **urban environments** option: urbanization and megacities, land-use models, **urban stress** (housing, traffic, pollution), the **urban heat island**, regeneration and gentrification, and strategies for more sustainable cities.

You must be able to:

- distinguish urbanization and urban growth, and explain why cities grow
- calculate a city growth rate from census data
- test land-use models against a real city
- explain the urban heat island and other urban stresses
- evaluate regeneration, transport and sustainability strategies

1 Key knowledge and worked examples

Growth

- **Urbanization**: a rise in the **proportion** of people living in cities. **Urban growth**: a rise in the **number** of people in cities. More than half of the world's people live in cities.
- A **megacity** has more than 10 million people (33 in 2018, UN). Shenzhen grew from a small border town in 1980 (a Special Economic Zone) to about 17.6 million in the 2020 census.
- Cities grow by rural–urban migration and natural increase. **Suburbanization** moves people to the edge; **counter-urbanization** moves them to small towns and the countryside.

Models and stress

Burgess's model shows **rings** around the centre; Hoyt's model shows **sectors** along transport routes. Use them as ideas to test, not as truths.

Urban stress: housing shortages and **informal settlements**, traffic congestion, air pollution, waste. The **urban heat island**: city centres are often several °C warmer than the countryside, especially at night, because concrete and tarmac store heat, there is less vegetation and water to cool the air, and traffic, buildings and air conditioners release heat.

Responses

strategy	example	limit
road pricing	Singapore (1998), London congestion charge (2003)	unpopular; can hit poorer drivers
public transport	metro systems in Chinese cities	very expensive to build
urban regeneration	old industrial land → homes, offices, parks	rents rise; poorer residents pushed out (**gentrification**)
green space, sponge-city parks	cools the city, stores rain	needs valuable land

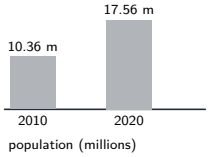
Worked example. Shenzhen: 10.36 million (2010 census) → 17.56 million (2020). Growth $= \dfrac{17.56 - 10.36}{10.36} \times 100 \approx 69.5\ \%$ in ten years.

2 Practice

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

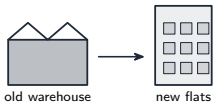


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2.3 State **two** causes of the urban heat island. [2]



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



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

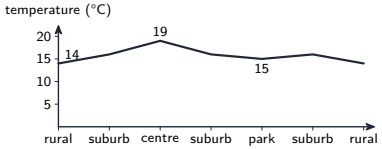


3 Exam-style questions

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]

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



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

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