Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

urbanization: an increase in the proportion of people living in urban areas; more than half / about 55–58%

2.2

dark surfaces such as tarmac and roofs absorb sunlight and release heat at night (low albedo); fewer plants and less water, so less cooling by evapotranspiration; waste heat from vehicles, factories and air conditioners; tall buildings trap heat and block wind

2.3

farmland and natural habitats are built over, so biodiversity is lost and habitats are fragmented; more impermeable surfaces increase runoff and flood risk; low density means longer journeys by car, so more fuel use, air pollution and CO_2

3.1

(a) $68 - 55 = \mathbf{13}$ percentage points

(b) push: e.g. few jobs and low farm incomes in rural areas, made worse by drought or mechanization; pull: e.g. more jobs and higher wages, better schools and hospitals in cities; people move to improve income and quality of life

3.2

(a) any two: good public transport, walking and cycling; renewable energy; green spaces; compact mixed-use areas; recycling of waste and water

(b) strength: plants cool buildings and reduce the heat island; they hold rainwater, reducing runoff; habitat for insects and birds; limitation: high cost and roofs must be strong enough; need maintenance and water; judgement: most useful in dense cities when combined with other green infrastructure

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