Question 5

Residents in densely populated, rapidly growing cities expect annual improvements in standards of living, but whether this is achievable or sustainable in the long term is uncertain.

(a) Explain how improvements in a country's material and non-material standard of living can be measured. [10]

(b) Discuss whether increases in the living standards of residents in densely populated, rapidly growing cities are achievable and sustainable in the long term. [15]

Suggested Answer to Part (a):

Requirement 1: How improvements in a country's material standard of living can be measured

Standard of living of people in a country refers to their well-being. There are two aspects of standard of living, namely the material well-being and non-material well-being.

The material standard of living of the people in a country is determined by the quantity of goods and services enjoyed by an individual.

An improvement in a country's material standard of living can be measured by the **rate of growth of real GDP per capita**.

Measuring rate of growth of real GDP
Real GDP refer to the value of final goods and services produced within a country measured at constant base year price. By measuring GDP at constant base year prices, its value has been adjusted for price changes. This means that changes to the value of real GDP reflects changes to the volume or quantity of goods and services produced and not changes in the price level since it is kept constant at the price prevailing in the base year.

Real GDP growth rate in 2022 = [Real GDP_{2022} – Real GDP_{2021}] / Real GDP_{2021} x 100%
If the real GDP growth rate in 2022 for a country is 3.6% for instance, it means that the volume or quantity of goods and services produced within the country grew by 3.6% in 2022 compared to 2021.

However, a rise in quantity or volume of goods and services produced does not necessarily imply an improvement in the quantity or volume of goods enjoyed by *an individual* if the number of residents in the country rose faster. Hence it is necessary to consider the population growth rate when measuring improvements in material standard of living.

Measuring rate of growth of real GDP per capita
Population growth rate in 2022 = [$Population_{2022}$ – $Population_{2021}$] / $Population_{2021}$ x 100%
If the population growth rate in 2022 for the country is 0.1% for instance, it means that $Population_{2022}$ is 0.1% larger than $Population_{2021}$.

Since population growth rate < real GDP growth rate → ↑real GDP per capita as real GDP per capita grew at 3.6% - 0.1% ≈ 3.5%

How rate of growth of real GDP per capita measures improvement in material SOL
Rate of growth of real GDP per capita in 2022 = 3.5% → each person on average enjoys 3.5% increase in the volume of goods and services in 2022 compared to 2021 → improvement in material SOL in 2022 compared to 2021, assuming that income inequality in the country is fairly low as captured by the Gini coefficient which measures income distribution and takes values between 0 to 1 where 0 represent perfect income equality and 1 represents perfect income inequality.

Requirement 2: How improvements in a country's non-material standard of living + SOL as a whole can be measured

The non-material standard of living of the people in a country is their quality of life in the country and is influenced by environmental factors such as degree of urban crowding and crime rates, as well as by socio-economic factors such as life expectancy, availability of health care and quantity of leisure.

An improvement in a country's non-material standard of living can be measured by indicators such as **Gini coefficient** and **infant mortality rate.**

Gini coefficient
A decrease in a country's Gini coefficient over time represents a reduction in income inequality over time. The chasm between the rich and the poor narrows leading to decreasing sentiments of social discontent. This is further reinforced when the economy as a whole grows in prosperity and the gains in growth and income are increasingly trickled down to the lower rungs of society. This could result in lower levels of social unrest and crime rates over time as even the lower income groups are able to make ends meet. Everyone feels safer and quality of life improves. In addition, as the lower rungs of society gradually have the means to afford legal housing in the vicinity of where they work or receive education, squatter settlements at the peripheries of cities and urban crowding will diminish rendering living conditions more optimal and improving quality of life. Hence a fall in Gini coefficient could imply an improvement in non-material standard of living, and therefore be a measure of improvements in a country's non-material standard of living.

Infant mortality rate
The infant mortality rate is measured as number of deaths of children under one year of age, expressed per 1 000 live births. A fall in the infant mortality rate in a country is another measure of improvements in a country's non-material standard of living. Decreasing levels of infant mortality rate are associated with better access to healthcare and nutrition over time, more optimal living conditions including better sanitation and higher levels of

education, implying improvements over time in the quality of life experienced by the residents of a country. Hence decreasing infant mortality rate is a measure of improvements in non-material standard of living in a country.

HDI as a composite indicator to measure SOL as a whole

Changes in composite indicators such as Human Development Index (HDI) which considers purchasing power parity adjusted real income per capita, literacy rate and life expectancy will allow a more informed reflection of standard of living as whole over time. The numerical value varies from 0 to 1 where 1 is best possible score and zero is lowest possible score. The HDI considers not only real income per capita but also life expectancy and literacy rate because the wellbeing of the people in a country is influenced not only by the goods and services available to them but also by their ability to lead a long and healthy life and to acquire knowledge. Hence a rise in a country's HDI could be a measure of improvements in material and non-material SOL holistically.

L3	Thorough address of both requirements / Thorough address of 1 requirement + Cursory address of the other. Answer is thorough, precise, logical, well-reasoned using theory.	8 – 10
L2	Thorough address of 1 requirement / Cursory address of both requirements. Answer is relevant to the question, but theory is incompletely explained.	5 – 7
L1	Both requirements hardly addressed / Cursory address of 1 requirement. Some knowledge shown but does not indicate that the meaning &/or requirements of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis. Mostly irrelevant and only contains a few valid points made incidentally in an irrelevant context.	1 – 4

Suggested Answer to Part (b):

Requirement 1: Increases in material living standards of residents in densely populated, rapidly growing cities are achievable and sustainable in the long term

Densely populated and rapidly growing cities are characterized by large numbers of people working and living in those cities as well as remarkable rates of expansion in terms of population growth, infrastructural development and real income growth.

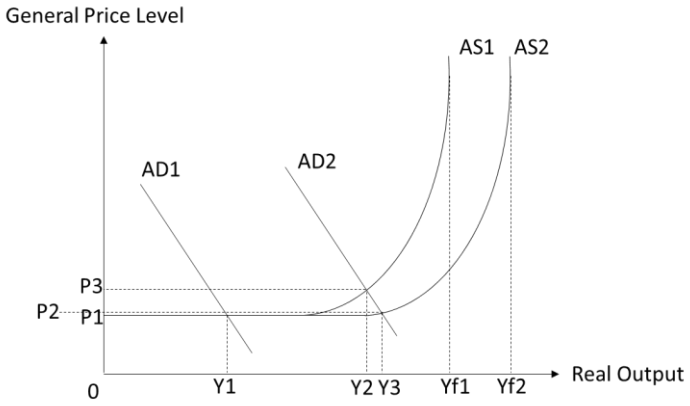
Increases in material living standards of residents in densely populated, rapidly growing cities are achievable and sustainable in the long term. Remarkable rates of expansion in terms of real income growth can result in residents having greater purchasing power to enjoy larger quantities of goods and services and so enjoy improvements in material living standards assuming that the population expands less rapidly.

Rapidly growing cities also offer more economic opportunities and attract a skilled workforce. Together with infrastructural development for example in transportation, likely the result of effective supply-side policies to improve productivity and efficiency – made all the more possible due to the greater tax returns from the rapid real income growth in rapidly growing cities, it attracts investment due to a rise in firms' expected returns to investment.

Assuming country cities like Singapore, the rise in investment raises the economy's aggregate demand as shown by a shift of AD1 to the right as shown in Figure 1 below, resulting in total expenditure to exceed total output giving rise to a shortage at the prevailing price P1. This causes an upward pressure on the general price level triggering a movement along AS & AD. The rise in income arising from the initial rise in AD causes a rise in income-induced consumption that results in further increases in AD. The process continues until a new equilibrium is reached where AS1 = AD2. The rise in AD from AD1 to AD2 brings about a multiple rise in income, output and employment from Y1 to Y2 as one's spending becomes another's income, which helps improve MSOL.

The rise In Investment also adds on to the country's capital stock and raises its productive capacity in the long run bringing about potential growth from Yf1 to Yf2 and continued improvements in MSOL potentially into the long run with a rise in the long-run aggregate supply from AS1 to AS2 causing a rise in real output from Y2 to Y3 in the long run, provided AD remains sufficiently high. Hence increases in material living standards of residents in densely populated, rapidly growing cities are achievable and sustainable in the long term, provided substantial investments have been made to ensure production is environmentally friendly and resource-efficient so that with the stock of resources preserved, future generations can continue to enjoy high real income growth and MSOL improvements.

Figure 1:



Requirement 1 Evaluation:
However, even if increases in MSOL are achievable, they may not be achievable in the long run for all segments of society since earlier generations in rapidly growing cities gradually find themselves unable to catch up with the evolving skill demands and lose their jobs to younger, more tech-savvy and higher-skilled workers. Workers not equipped with IT skills and who, because of age, are unable to acquire these skills fast enough in this rapidly growing and evolving city, the economic opportunities offered by the rapidly growing city elude them as they lack the relevant skills, causing them to be structurally unemployed. The fall in demand for low-skilled workers and a rise in demand for high-skilled workers worsens income inequality in rapidly growing cities over time. Real income growth is not equally enjoyed by all → greater availability of goods and services is extended mainly to the higher-income/higher-skilled, and so material living standards can only be said to have improved for the higher-income/higher-skilled with little or no improvements (or even a worsening) for the lower-skilled.

Requirement 2: Increases in the <u>non-material living standards</u> of residents in densely populated, rapidly growing cities are achievable and sustainable in the long term

Increases in non-material living standards of residents in such cities may also be achievable and sustainable in the long term. The remarkable rate of real income growth that characterises rapidly growing cities results in higher tax revenue contributions which provide the government with more financial resources to clean the environment and reduce carbon-emissions, develop and upgrade infrastructure for transportation, healthcare, housing and education to meet the needs of a growing population, and help the poor & disadvantaged by subsidising housing & healthcare. These result in an improvement in quality of life and hence an improvement in NMSOL.

Singapore grew rapidly since gaining independence in 1965. Over a period of 10 years from 1977 – 1987 the Singapore government cleaned up the very polluted Singapore River and relocated the surrounding squatters and cottage industries – primary sources of pollution of the Singapore River – to public housing and flatted factories. With proper education of the public on how to upkeep the cleanliness of the environment, and the

setting up of waste management systems supported by the enforcement of rules and regulations against activities that pollute the environment, the Singapore River remains clean to this day, contributing to the "clean and green" environment of Singapore and allowing the improvements in NMSOL to be sustainable in the long run.

Requirement 2 Evaluation:
Despite there being more financial resources due to the income growth of rapidly growing cities, the improvements in NMSOL as explained earlier could only be achieved in the long run, assuming the government is committed to deployment of resources to careful urban planning and development. If the government prioritises other expenditure over urban planning and development, the lack of money committed to the latter can result in the infrastructural development/expansion not keeping pace with the rapid population growth of the city. This will give rise to urban overcrowding a worsening of NMSOL as sanitation and hygiene is compromised and living conditions worsen.

Summative Conclusion:
In conclusion, increases in the living standards of residents in densely populated, rapidly growing cities are achievable and sustainable in the long term when the following is in place: innovative urban planning, investments in infrastructure and technology, effective governance including the provision of social safety nets in the form of transfer payments i.e., subsidies for healthcare, transport, basic housing to ensure a decent standard of living particularly for those who find it hard to adjust to the new technologies in a rapidly growing city, community involvement, and a commitment to balancing growth with environmental preservation and social equity. While challenges exist and it may even be argued that such improvements may not be sustainable in the long run due to physical space constraints, collaboration among governments, businesses, and residents is key to overcoming challenges and building thriving, livable cities for generations in the foreseeable future.

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E3	For an answer that builds on appropriate analysis to evaluate contemporary issues, perspectives and policy/strategy choices, that recognizes unstated assumptions and evaluates their relevance, and that synthesises economic arguments to arrive at well-reasoned judgements and decisions.	5

E2	For an answer that makes some attempt at evaluation or a conclusion that answers the question but does not explain the judgement or base it on analysis.	3 – 4
E1	For an answer that gives superficial evaluative statement(s) without supporting analysis and elaboration.	1 – 2