Essay Q1

The sharp increase in price of food in land-scarce Singapore could be attributed to the recent restrictions on export of food supply imposed by other countries and growing affluence. The Singapore government has implemented the '30 by 30' plan which aims to produce 30 per cent of our nutritional needs by 2030.

(a) Explain the reasons for the sharp increase in price of food in Singapore. [10]
(b) Discuss whether the '30 by 30' plan is likely to be the most effective way the Singapore government can address the sharp increase in price of food. [15]

▪▪

Question Interpretation for part 'a':
<u>Command Word:</u> "Explain" → Define, Illustrate, Elaborate with Economic concepts
<u>Cue Words/ Key Economic Concepts:</u>   • "sharp increase"→ need to use PED or PES to explain   • "increase in price of food"→ link to DD and SS factors to explain why price of food increases   • "Singapore"→ context
<u>Requirement (1):</u> DD reason to explain for an increase in price of food in SG   <u>Requirement (2):</u> SS reason to explain for an increase in price of food in SG   To score high L3→ must use either PED or PES to explain for sharp increase in price of food

Introduction
Link to preamble: • The preamble states that there has been a recent ban or restrictions on export of food supply imposed by other countries and growing affluence which could contribute to the sharp increase in the price of food in Singapore.   **Definition of terms:**   • In this context, demand for food refers to the quantities of food that consumers are willing and able to purchase in a given period of time at various prices, ceteris paribus.   • On the other hand, supply of food refers to the quantities of food that suppliers are willing and able to sell in a given period of time at various prices, ceteris paribus.   **Answer the question:**   • Using demand and supply analysis, this essay seeks to explain the reasons for the sharp increase in price of food in Singapore.

Body/ Development

Using ISSUE framework as a tool of analysis:

<u>State initial equilibrium:</u>
Initially, the market for food is in equilibrium at the intersection of demand (D1) and supply (S1) at the equilibrium point E1.

<u>Explain one demand reason (Requirement 1):</u>
One possible reason for the increase in demand would be the growing affluence in Singapore. This suggests a rise in income levels and hence purchasing power for an average Singaporean. Hence, demand for food increases by less than proportionately, ceteris paribus, assuming food is a necessity and hence YED value is positive and less than 1 (i.e., 0<YED<1). Demand curve will shift to the right from D1 to D2 by a smaller extent. This will lead to a rise in price of food.

<u>Explain one supply reason (Requirement 2):</u>
As mentioned in the preamble, there has been a recent restrictions on export of food supply imposed by other countries. As a resource-scarce country, Singapore relies a lot on imports including that of food, and so export restrictions imposed by food-exporting countries will impact Singapore significantly. For instance, India has recently enacted a ban on some overseas sales of non-basmati white rice in July 2023, while Malaysia has banned fresh chicken imports into Singapore in June 2022. These cause a rise in the unit cost of production of food, leading to a fall in potential profits. Supply thus falls, ceteris paribus and supply curve shifts from S1 to S2, resulting in a rise in the price of food.
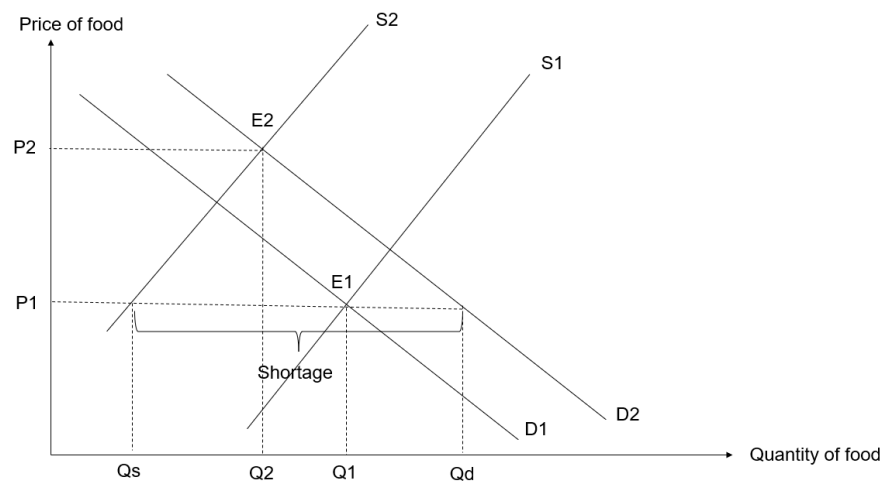
<u>Identify shortage/ surplus:</u>
At the original price level P1, the simultaneous rise in demand and fall in supply creates a shortage of QdQs as quantity demanded exceeds quantity supplied. This creates an upward pressure on price. As price rises, quantity demanded falls while quantity supplied rises. The shortage is gradually reduced as prices reach P2.

<u>State the new (final) equilibrium:</u>
Finally, the market is back in equilibrium at the intersection of the new supply curve and the new demand curve. The new equilibrium price is higher at P2 and equilibrium quantity is lower at Q2 as seen in Figure 1 above.

<u>Answer to the question on 'sharp' increase in the price of food:</u>
Students to elaborate on reinforcement effect + either PED/ PES to explain sharp increase in price

Reinforcement effect:
A rise in demand will result in a rise in price and quantity. A fall in supply will result in a rise in price and fall in quantity. Thus, a simultaneous rise in demand and fall in supply will reinforce each other to create a larger increase in price of food, leading to a sharp increase in price.

PED<1:
The sharp increase in price is also due to the inelastic demand (i.e., PED<1). In this case, PED<1 because food is a necessity. As such, with a fall in supply and an inelastic demand, any rise in price will lead to a less than proportionate fall in quantity demanded for food, ceteris paribus, suggesting that the price of food needs to increase by a larger extent in order to clear the shortage. This can account for the sharp increase in the price of food.

PES<1:
Similarly, the sharp increase in price of food can also be due to the inelastic supply (i.e., PES<1). In this case, PES<1 because it takes time to grow the food crops. As such, with a rise in demand and an inelastic supply, any rise in price will only lead to a less than proportionate rise in quantity supplied of food, ceteris paribus, suggesting that the price of food needs to increase by a larger extent in order to clear the shortage. This can account for the sharp increase in the price of food.

<u>Note:</u> *There is no need to justify the extent of shifts in demand and supply curves nor explain whether price or quantity is indeterminate as the question did not ask for impact on market i.e., on price and quantity, but on price alone, which in this case increases unambiguously.*

Conclusion
As the sharp increase in price may cause inaccessibility to a necessity like food, it is thus imperative for the Singapore government to step in and intervene with appropriate policies.

Mark Scheme

Level	Knowledge, Application, Understanding, Analysis	Marks
L3	• Analytical explanation of reasons that cause an increase in price • A rigorous explanation of both demand and supply factors must be evident. • To enter L3 candidates are expected to explain the sharp rise with reference to both the demand curve and the supply curve. • To score high L3, students will need to link PED/ PES concepts to address the portion on a <u>sharp</u> increase in price.	8-10
L2	• Limited rigour in analysing reasons that cause an increase in price • An explanation of both demand and supply factors is evident but with gaps in analysis or some inaccuracies. • Unbalanced analysis e.g., only 1 requirement is explained	5-7
L1	• Largely descriptive • Smattering of points that demonstrate some knowledge • Some knowledge of demand and supply factors	1-4

(b) Discuss whether the '30 by 30' plan is likely to be the most effective way the Singapore government can address the sharp increase in price of food. [15]

Question Interpretation for part 'b':
Command Word: "Discuss"→ Thesis-Antithesis-Synthesis/ 2-sided analysis
Cue Words/ Key Economic Concepts: • '30 by 30 plan'→ ↑SS of food • 'most effective…address the sharp increase in price of food'→ work vs don't work in addressing sharp ↑price of food + bring in another policy for comparison
Requirement (1): '30 by 30' plan is the most effective way the Singapore government can address the sharp increase in price of food (e.g., ↑SS of food) Requirement (2): Any other policy could be the most effective way the Singapore government can address the sharp increase in price of food (e.g., ↓DD for food)

Introduction
Aim of government: All governments, including the Singapore government, aims to maximise the society's welfare.
The sharp increase in prices brings about undesirable outcomes such as a fall in consumer surplus. Hence it is imperative for the Singapore government to implement policies to address the sharp increase in price. An example is the '30 by 30' plan implemented by the Singapore government.
Answer the question: Hence, this essay seeks to discuss whether the '30 by 30' plan is the most effective way the Singapore government can address sharp increase in price of food.

| **Body/ Development** |
|---|
| **Requirement (1)/ Thesis: 30 by 30 plan is the most effective way the Singapore government can address the sharp increase in price** |
| **Step (1): What the policy is about**
Firstly, the '30 by 30' plan is one policy that the Singapore government can implement to address the sharp increase in price. |
| **Step (2): How the policy works**
As mentioned in the preamble, the '30 by 30' plan aims to produce 30 per cent of Singapore's nutritional needs by 2030. For instance, it seeks to develop sustainable environmental and aquaculture solutions to enhance food supply. This means that it aims |

to increase supply of food in a highly productive, climate-resilient, and resource-efficient way, such as using Internet of Things (e.g., IoT) or automation to increase production of food. This could be done via subsidies given by the government in order to employ a more resource-efficient way to raise food supply.
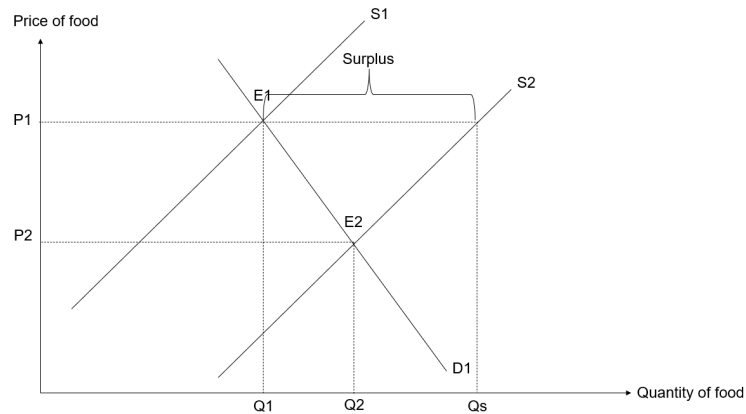
Figure (2)

As seen in Figure 2 above, the '30 by 30' plan will lead to a fall in unit cost of production, leading to a rise in potential profits and hence an increase in supply of food, ceteris paribus, shifting the supply curve from S1 to S2 to the right. This leads to a surplus (Q1Qs) at original price P1, resulting in a downward pressure on price. As price falls, quantity demanded rises while quantity supplied rises, before finally reaching the equilibrium at E2, where the equilibrium price of food falls from P1 to P2 and equilibrium quantity of food rises from Q1 to Q2.

Link back to the question: Hence, with a fall in the price of food, this shows that the '30 by 30' plan by the Singapore government can address the sharp increase in price of food.

Step (3): How well the policy works + EV
[Criterion: Certainty in outcome] Whether the policy is effective depends on certainty in outcome as a criterion. ***[Reasoning]*** '30 by 30' plan requires the agricultural industry to transform into a highly productive, climate-resistant and sustainable industry using innovated and technology upscaling. However, such technological transformation via R&D does not mean that success is guaranteed as it has an uncertain outcome, which may reduce the effectiveness of this policy in reducing price. ***[Opinion]*** If R&D fails, then the '30 by 30' plan is ineffective. Moreover, R&D is costly, suggesting that producers e.g., farmers may pass on rise in cost of production in the form of higher prices, worsening consumer surplus.
OR
[Criterion: PES] Whether the policy is effective depends on the value of PES. ***[Reasoning]*** If PES>1, any rise in price will lead to a more than proportionate rise in quantity supplied, ceteris paribus, while for PES<1, any rise in price will lead to a less than proportionate rise in quantity supplied, ceteris paribus. ***[Opinion]*** In this case, as mentioned in the preamble, Singapore is very "land-scarce", suggesting that the supply of

food is highly price-inelastic due to lack of existence of land as a resource. In addition, it takes a long time to harvest crops, and hence farmers will be less responsive to changes in price. As such, PES is <1, and this makes the '30 by 30' policy less effective in reducing the extent of price increase given a rise in demand. However, in the longer run, assuming that the '30 by 30' plan works, the value of PES will increase i.e., PES can be more than 1, which will then prevent as sharp an increase in the price in the future as demand rises.

Bridging statement:
Alternatively, the Singapore government can consider policies that influence the demand-side, such as policies to reduce the demand for food.

Requirement (2)/ Antithesis: Other policy is more effective for the Singapore government can address the sharp increase in price

Step (1): What the policy is about
The Singapore government can influence the demand for food using awareness campaigns, or to educate the public regarding excessive food consumption. In Singapore, rising affluence leads to higher income and purchasing power, which gives Singaporeans greater variety in food choices. This leads to overindulgence, excessive demand and hence consumption of food, which could lead to food wastage.

Step (2): How the policy works
By raising awareness of excessive consumption and wastage of food, the demand for food will reduce, ceteris paribus, assuming that the public is receptive to such awareness and educational campaigns. Hence, the demand curve will shift to the left from D1 to D2 as shown in Figure 3. This leads to a surplus (QdQ1) at original price P1, which creates a downward pressure on price. As price falls, quantity demanded rises and quantity supplied rises. The surplus is gradually reduced. The equilibrium price of food falls from P1 to P2 and equilibrium quantity of food rises from Q1 to Q2.
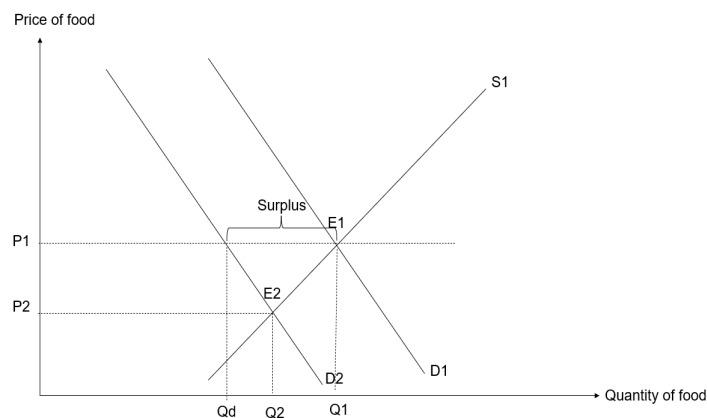
Figure 3

Link back to the question: Thus, with a fall in price of food, this shows that the awareness and educational campaigns by the Singapore government to reduce excessive demand and consumption of food can address the sharp increase in price of food.

Step (3): How well the policy works + EV
[Criterion: Receptiveness of consumers & time period] Whether the policy is effective depends on certainty in receptiveness of consumers. *[Reasoning]* Using moral suasion, awareness and educational campaigns only serve to create awareness and persuade consumers to consume and hence demand less food, but consumers may be less receptive, especially if habits are ingrained. However, if the policy manages to create saliency bias, which is the tendency for people to focus on information that is more prominent or eye-catching/salient and over other less prominent but equally relevant pieces of information i.e., in this case, consumers may be more inclined to reduce demand for food if the undesirable impacts of excessive food consumption, for example on weight gain and physical appearance/body image, are impactful enough.
[Opinion] However, this could be difficult to achieve during festive seasons, where indulgence is generally observed. Thus, this means that such campaigns may be less effective as receptiveness is lowered. This also means that it will take a long time to change mindsets regarding overconsumption of food, and policy will only be effective in the long run.
OR
[Criterion: Root cause of the problem] Whether the policy is effective depends on root cause of the problem. *[Reasoning]* It is important to note that one of the main reasons why some countries may impose export restrictions is to ensure their own food security, which may be compromised due to climate change that reduces food crop production. This would mean that by reducing demand for excessive food consumption, this would lead to the production of food and the carbon emissions associated with it to correspondingly fall. As such, over the long run, this reduces the degree of climate change and its adverse environmental impacts on crop production---food-exporting countries therefore may experience improved crop production and hence greater food security, and this means they are less likely to restrict food exports. This will raise supply of food and hence reduce price of food in the long run. *[Opinion]* Thus, this means that such campaigns may be more effective addressing the sharp increase in price in the longer run.

Alternative policies for consideration: Policies to raise PED value e.g., diversifying food choices i.e., so it leads to higher availability of substitutes.

Synthesis & Evaluative Conclusion

Overall, whether the '30 by 30' plan is likely to be the most effective way the Singapore government can address the sharp increase in price of food <u>*depends on*</u>:

[Criterion: Time period & Degree of severity] [Reasoning] The time period and degree of severity. This is because the policy's effects only manifest in the future. *[Opinion]* In this case, the degree of severity is high as there is a <u>*sharp*</u> increase in the price of food,

meaning that if the government aims to address the sharp increase in price now, this policy is not effective. Thus, it is imperative for the Singapore government to also consider the implementation of a short-run policy to complement the '30 by 30' plan, which will be a good short-term interim policy to help to sustain our food supply and prevent susceptibility to imported supply shocks. Nevertheless, the '30 by 30' policy and the awareness and educational campaigns are important to help Singapore to ensure food security into the long run, and thus would be considered as effective in addressing the sharp increase in price of food in the long run.

Overall judgement:

Singapore's reliance on imported food to begin with was the result of our comparative disadvantage in food and agricultural production due to scarce land i.e., we could import food more cheaply than producing it ourselves. Turning to domestic food production could imply higher costs and prices of food instead of reducing or slowing down the rise in the price of food especially in the immediate term when Singapore has not acquired the technology and expertise to produce food more efficiently or cheaply than food-exporting countries. Hence in recognition of our land constraint, only 30% of our nutritional needs will be covered by domestic production in the longer term by 2030.

[Recommendation] Thus, the Singapore government also can consider further diversification of food sources, whether is to import food from different countries or to consider tapping on regional markets as a broader aspect of its '30 by 30' plan i.e., work with small scale regional farmers to increase supply of food for Singapore to address the sharp increase in price and also achieve food security in the long run.

Note: Students can also choose any other criterion/ criteria to elaborate, as long as it is relevant and appropriate. E.g., With respect with equity concerns, policies that slow down the rise in price may not be as effective as those that reduce prices→ students to further elaborate.

Mark Scheme:

Level	Knowledge, Understanding, Application, Analysis	Marks
L3	For a good analytical assessment of how '30 by 30' policy and 1 more policy to address the sharp increase in price of food (e.g., both strengths and limitations linking explicitly to effectiveness of policy).	8-10
L2	For a correct but underdeveloped explanation. For an explanation on how '30 by 30' policy to address the sharp increase in price of food may be most effective (e.g., strengths and limitations) but with some missing gaps in analysis or some inaccuracies. Response may not necessarily link back explicitly to effectiveness of policy.	5-7

	OR For 1 policy that is thoroughly analysed and evaluated.	
L1	Ability to identify one or two policies that seek to address the sharp increase in price of food. Answer lacks depth and content. Smattering of points.	1-4
	Evaluation	
E3	E2 + Clear & sound justification on whether '30 by 30' is the most effective policy to address the sharp increase in food price.	5
E2	For an answer that provides a criterion-based judgement on the effectiveness of each policy to address the sharp increase in food price.	3-4
E1	Mainly unexplained judgments. *OR* Assertive evaluative statements without justification.	1-2

Essay Q2

Greater competition in Singapore's food delivery industry saw Foodpanda using high-speed drones to deliver hot meals from Sentosa to St John's Island to boost profits. Other profit-increasing strategies included price discrimination.

(a) Explain how the degree of barriers to entry is likely to affect a firm's pricing and output decisions in the short run and long run. [10]
(b) Discuss whether innovation or price discrimination is the more appropriate strategy for a food delivery firm to increase its profits in view of greater competition. [15]

Suggested answers (a)

Introduction

A barrier to entry (BTE) refers to anything that prevents the entry of new firms into an industry and thereby limits the amount of competition faced by existing firms. The weaker the BTE, the more competition the firm will experience while the stronger the BTE, the lesser competition the firm will face.

Development

Requirement #1: how firm's price and output are determined in an imperfect competitive market in the short run

Generally, BTE causes markets to be imperfectly competitive. This gives firms market power – the ability to influence the price of a product above its marginal cost.

An imperfectly competitive firm faces a downward sloping demand curve where both AR and MR are downward sloping with MR lying below AR. If the imperfectly competitive firm wishes to sell more, he will have to lower the price; if he wishes to sell at a higher price, he must be prepared to sell less. The imperfectly competitive firm can thus determine the price or the output, but not both price and quantity.

Assuming the aim of imperfectly competitive firms is to maximise profits, they determine their profit maximising price charged and output sold by equating marginal costs (MC) to marginal revenue (MR), i.e. MC = MR and where MC is rising.

In determining MC, firms consider the costs of producing an additional unit of output. Similarly, in determining MR, firms consider the additional revenue earned.

[For info] For instance, a firm in the food delivery industry in deciding whether to provide more units of services will have to consider both explicit and implicit costs:

- *explicit costs: additional factor input costs e.g. wages paid to workers*
- *implicit costs: possible opportunity costs will be forgone (e.g. potential profits gained from producing and selling alternative products or services)*

Thus, a rational and incentive-driven firm will determine the profit maximising output, Q, based on the condition where MC cuts MR and where MC is rising.

Figure 1

Maximum profit occurs when rising MC cut MR
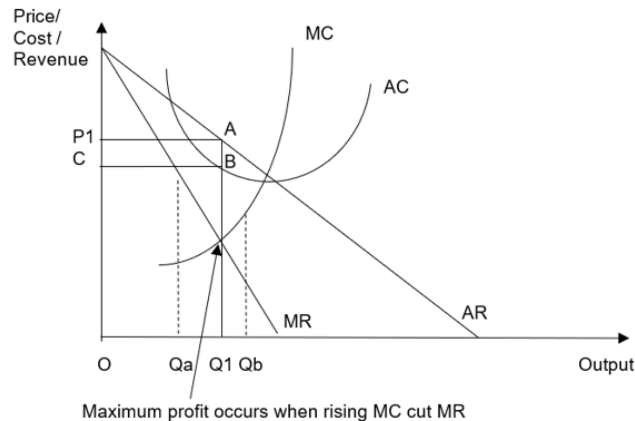
If the firm produces Qa where MR > MC, then producing the last unit of output adds more to revenue than to cost. This implies that the firm should increase its output till Q1 where MR = MC. Hence, at Qa, the total profit of the firm could be increased by producing another unit of output.

If the firm produces Qb where MR < MC, then producing the last unit of output adds more to cost than to revenue. This implies that the firm should reduce its output till Q1 where MR = MC. Hence, at Qb, total profit could be increased if the last unit of output was not produced and output should be reduced.

Thus, profit (area P1ABC) is maximised when the firm produces OQ1 and charge price OP1 where MC = MR, and MC cuts MR from below.

- Weaker BTE → more competition → many substitutes available → AR/DD lower and less steep → firm will have lesser market power and lower ability to set high price → lower prices + lower output
- Stronger BTE → less competition → lesser or no substitutes available → AR/DD higher and steeper → firm will have more market power and higher ability to set high price → higher prices + higher output

Requirement #2: how firm's price and output are determined in an imperfect competitive market in the long run

Figure 2

Price, Cost, Revenue ($)
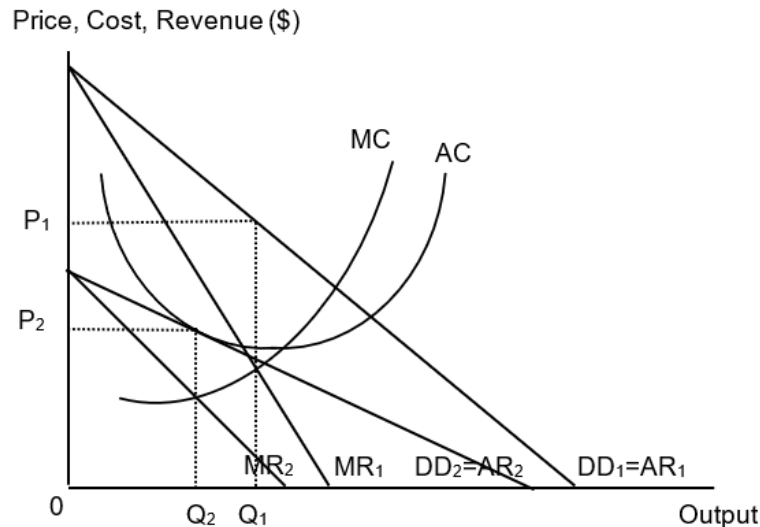
When the imperfect competitive firms earn supernormal profits in the short run,

- Weaker BTE → new firms are enticed by the supernormal profits earned by existing firms hence will be able to enter the industry → more substitutes available → fall in AR/DD and becomes less steep from DD1/AR1 to DD2/AR2 → existing firms' supernormal profits are competed away until only normal profits are earned → lower price (from P1 to P2) and output (from Q1 to Q2) in long run [students can also show the adjustment using PC firm/industry]
- Stronger BTE → new firms are enticed by the supernormal profits earned by existing firms but are unable to enter the industry → existing firms able to maintain their supernormal profits by charging same high price and output in the long run.

Conclusion

Therefore, the stronger the BTE, firms will be able to set higher prices by restricting output in the short run and maintain this in the long run.

Mark Scheme

Level	Knowledge, Application/Understanding and Analysis	Mark
L3	• For an answer that shows a well-developed understanding (including use of diagram(s)) of how degree of BTE affects firms' price and output both in the short run (marginalist principle and different level of	8 – 10

	prices and output) and long run (change in price and output).	
L2	• Answer lacks depth of analysis (i.e. limited explanation of marginalist principle or no comparison made between the different degree of BTE). OR • Answer lacks breadth (i.e. only explains SR or LR).	5 – 7
L1	• Answer is irrelevant to the question. OR • Answer is descriptive or a mere listing of points, and/or contains major conceptual errors.	1 – 4

(b) Discuss whether innovation or price discrimination is the more appropriate strategy for a food delivery firm to increase its profits in view of greater competition. [15]

Suggested answers (b)

Introduction

To increase profits, a food delivery company should seek to increase its total revenue and/or reduce its total costs. There are several strategies that the company can adopt, for example non-price strategies like diversification, product and/or process innovation, pricing strategies like price competition or price discrimination.

Requirement #1: innovation is an appropriate strategy for a food delivery firm to increase its profits

[What it is]

Innovation refers to the efforts put in by a firm to come up with new, improved or differentiated products (Product Innovation). If successful, this will raise its market power, thus enabling it to earn higher revenue. Innovation can also take the form of new or improved production processes, which raises productivity or lower costs (Process Innovation). Innovation can be low cost in nature (e.g. improving the packaging of the product) or may involve costly research and development (R&D), especially if it is technology related.

[How it works]

Product/service innovation

To maintain profits in view of greater competition, a firm must seek out new products that will provide it with competitive edge, even if only temporarily, to increase the demand for its product and its profit. For example, Foodpanda has innovated by offering delivery service with the use of "high-speed drones to deliver hot meals" to offshore islands around Singapore. With the success of the new service, there would be an increase in demand for Foodpanda's food delivery services from the offshore islands. This will increase Foodpanda's DD/AR and cause the curve to become steeper (from DD1/AR1 to DD2/AR2) as the company is the first to have such service, i.e. lack of substitutes.

Figure 3
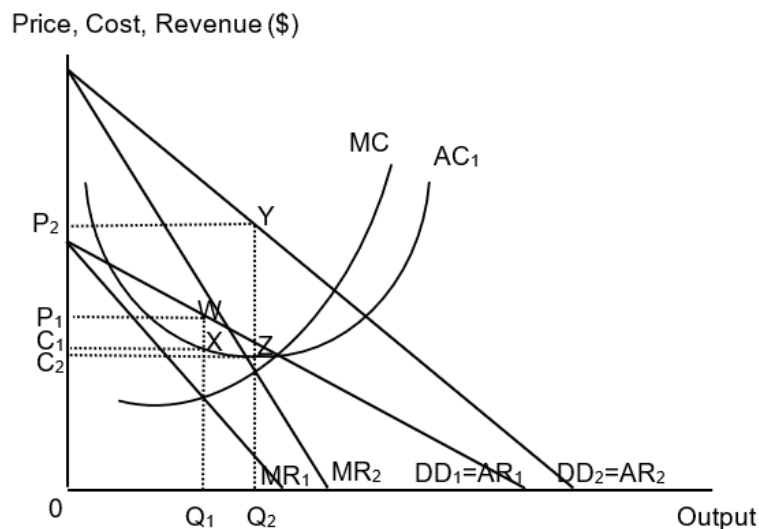
Initially, the firm produced at profit-maximising Q1 where MR1=MC and charged P1, thereby earning supernormal profits P1WXC1. Subsequently, it produces at the new profit-maximising Q2 where MR2=MC, and charges a higher P2. Supernormal profits will increase to P2YZC2.

Process innovation

With process innovation, the firm can experience a rise in efficiency, and this leads to a lowering of the firm's unit cost of production. This could take the form of faster matching of the food to be delivered by the deliveryman. Referring to Figure 4, this causes the firm's MC and AC to fall from MC1 to MC2 and AC1 to AC2 respectively. Initially, the firm produced at profit-maximising Q1 where MR1=MC1 and charged P1, thereby earning supernormal profits P1ABC1. Subsequently, it produces at the new profit-maximising Q2 where MR1=MC2, and charges a lower P2. Supernormal profits will increase to P2DEC2.

Figure 4:
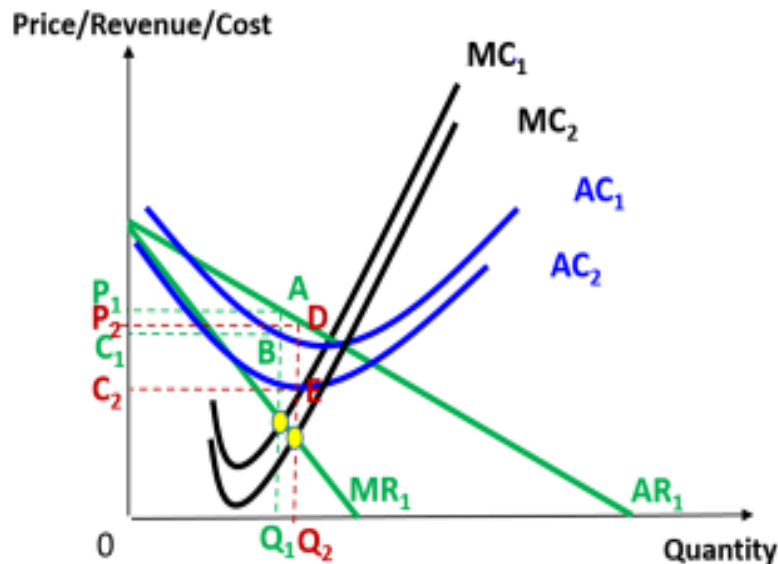
[NOTE: Students only need to show diagram and detailed analysis for either product/service or process innovation and a brief analysis of the other one.]

[How well it works]

Possible EV1: Whether profit level will increase depends on the success of the innovations. When Foodpanda embarked on using high-speed drones to deliver hot meals from Sentosa to St John's Island, it can be considered a ground breaking approach, with few or even no substitutes. In this case, Foodpanda is considered to have first mover advantage (a firm's ability to be better off than its competitors as a result of being first to market in a new product category), which can help to reduce PED for its food delivery service. Hence it will be quite appropriate as given a less responsive demand, Foodpanda's revenue will not be as volatile as it currently is, as its competitors launches a price war. This will help Foodpanda to boost profits, assuming the increase costs of innovation is less significant and rival firms cannot easily replicate the same service.

Alternative EV1: Depends on availability of funds for company to engage in innovation. Companies without sufficient funds may not be able to do so especially since innovation may involve costly R&D. In the case of food delivery company, it does have significant market power and has been able to earn supernormal profits even in the long run. The firm will be able to tap on the accumulated profits and channel them to fund the research and development of new and higher quality products/services or develop more cost-efficient ways of production/proviading services. Given sufficient funding, it would be appropriate for the firm to embark on innovation and ensure the success of it, which may have greater and more sustained effect in increasing profits in view of increasing competition.

Requirement #2: price discrimination is an appropriate strategy for a food delivery firm to increase its profits

[What it is]

Price discrimination happens when a firm sells the same product to different groups of consumers at different prices when the price difference cannot be explained by differences in the cost of production.

[How it works]

[Stating **conditions** for Price Discrimination] Food delivery companies like Foodpanda, Grab and Deliveroo have some degree of market power, they are thus price setters and can decide on the prices to charge different sub-segments of the market (those with subscription vs without subscription or peak vs non-peak period), depending on the price elasticity of demand of each sub-market.

[How **3rd degree PD** is carried out] Since these food delivery companies are providing the same service in both sub-markets, it must consider the MC of the whole output irrespective of which market it is sold. This means that MC in all markets is the same. Foodpanda will produce that level of output where the MC of the firm is equal to the combined MR curve of the 2 sub-markets. At this output, profit is maximised. The price to charge will then depends on the price elasticity of demand of each sub-market.

[How lowering of price in markets where DD is price **elastic** helps the firm to earn higher revenue] In the case of food delivery company, one sub-market would be those who order outside of meal times (off-peak period), whose demand would be more price elastic due to the service being less essential (less of a necessity). Charging a lower delivery fee would cause quantity demanded to increase more than proportionately, causing total revenue to increase.

[How increasing the price in markets where DD is price **INelastic** helps the firm to earn higher revenue] Another sub-market would be those who order during meal times (peak period), whose demand would be more price inelastic due to the service being considered as essential (more of a necessity). Charging a higher delivery fee would cause quantity demanded to fall less than proportionately, causing total revenue to increase as well.

[How PD helps a firm to earn more profits] Thus, a food delivery company that price discriminates could earn higher revenue and profit, ceteris paribus than if it were to be a single price seller.

[How well it works]

Possible EV2: Whether PD can allow the firm to earn higher level of revenue depends on whether the conditions of PD are fulfilled. For example, for subscribers who paid monthly subscription to enjoy lower delivery charges, they could share their subscription account with others so that with one subscription, many people get to enjoy the perks, i.e. "seepage" is possible between the sub-markets. If the food delivery firm is unable to

restrict this sharing of account (i.e. resale is possible), PD may not be an appropriate strategy as the company will not be able to practice PD successfully. People may abuse the subscription and many get to enjoy the lower delivery fee, causing the firm's revenue and hence profits to fall. In this case, there may also be a blurring of sub-markets where the firm is unable to segment the market by classifying its buyers into sperate, identifiable groups of consumers to be charged differently.

Alternative EV2: While price discrimination enables a firm to earn higher amount of revenue, whether a firm earns higher profits depends also on the cost condition. In the case of food delivery company, for it to effectively be able to cater to the increase in demand for food delivery service, the company will have to ensure that they have sufficient riders around to do the delivery. Some of these riders may be part-timers and hence not available to work during off-peak periods or lesser incentive to do so as the delivery fee they receive are lower. Hence to entice more riders to work during off peak periods, the company may need to offer additional incentives to attract more riders to work. This may add on to the costs for the company, hence although the firm would like to use price discrimination to increase revenue, the fact that cost cannot be kept constant means price discrimination is not possible and hence not appropriate. If the increase in revenue is only sufficient to cover the increase the rise in costs, the increase in profits may not be significant.

Conclusion

In view of greater competition, the more appropriate strategy should be one that can allow the firm to enjoy both revenue and cost advantages. It will be insufficient for any company to depend on lowering costs constantly without trying to secure a bigger market share as other companies may seek to constantly improve on their products to attract more customers. Similarly, other than gaining larger market share, a company will also need to seek lower costs to maintain its competitiveness in the market. Hence, it may be more appropriate for a food delivery company to not only focus on increasing revenue via price discrimination but engage in both product and process innovation to increase profits more effectively, assuming the company has the funds to do so.

Mark Scheme

Level	Knowledge, Application/Understanding and Analysis	Mark
L3	• For an answer that shows a well-developed and well-balanced analysis (including use of diagram(s)) of the two mentioned strategies that the firm can adopt. • Good contextualisation to the food delivery industry.	8 – 10

L2	• Answer lacks depth of analysis (i.e. no or limited use of concepts such as profits/costs/revenue). OR • Answer lacks breadth (i.e. only analysed one of the strategies). • Limited contextualisation to the food delivery industry.	5 – 7
L1	• Answer is irrelevant to the question. OR • Answer is descriptive or a mere listing of points, and/or contains major conceptual errors.	1 – 4
	Evaluation	**Marks**
E3	Provides a stand with clear justification using criteria and/or question assumptions.	5
E2	Provides a stand with limited justification.	3-4
E1	An unjustified stand.	1-2

Essay Q3

The healthcare market may not achieve an efficient and equitable allocation of resources when there is imperfect information.

(a) Explain how imperfect information leads to allocative inefficiency in the market for healthcare screening and health insurance respectively. [10]

(b) Discuss the most effective policy measures to ensure an efficient and equitable allocation of resources in the market for healthcare screening. [15]

Suggested Answers:

**Part (a):**

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Introduction

Allocative efficiency is having the right amount of the right goods produced and society's welfare is maximised.

Imperfect information arises when consumers do not get the right information or lack the relevant information on the benefits or harm that they are likely to receive from the consumption of the good or service.

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Development

Req 1: Explain how imperfect information leads to allocative inefficiency in the market for healthcare screening

In the case of healthcare screening, individuals do not fully appreciate the private benefits that will be received from it. For example, healthcare screening would allow individuals to detect illnesses earlier and thus save on healthcare costs in future. However, the savings in healthcare costs are in future, uncertain and difficult to estimate accurately, as such, individuals underestimate their private benefits.

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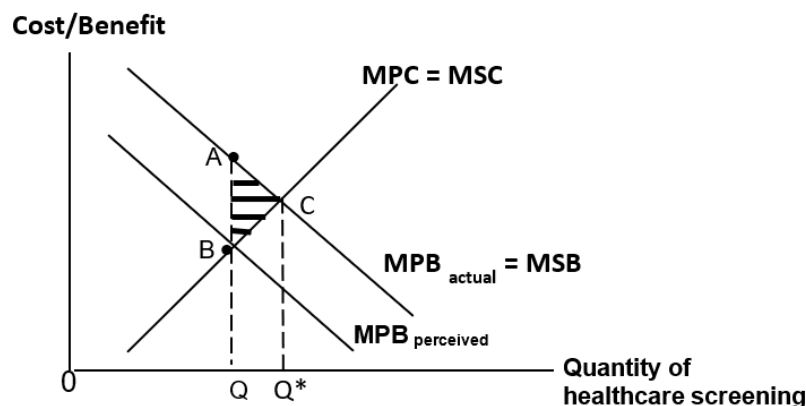
Meanwhile the marginal private cost of consuming healthcare screening includes the consultation and screening charges. As such, consumers perceived the marginal private benefit to be at MPB $_{perceived}$ which is lower than the actual MPB (MPB $_{actual}$) when consumers have full information of their private benefits. Hence, with no government intervention, consumers will only be concerned about MPB $_{perceived}$ and MPC in their decision-making process and consume healthcare screening at Q.

However, the socially optimal level of consumption is at Q* where MPB$_{actual}$ intersects the MSC (assuming no externalities). Hence with no government intervention, there is an underconsumption of QQ* units of healthcare screening. This results in the under-allocation of resource to the consumption and hence production of healthcare screening. Therefore, there is welfare loss represented by area ABC, which arises from imperfect information as the benefit forgone exceeds the costs in not consuming QQ* units of healthcare screening. Hence, the net benefit forgone from the underconsumption of vaccines leads to allocative efficiency.

Requirement 2: Explain how imperfect information leads to allocative inefficiency in the market for health insurance
Asymmetric information is the situation in which the economic agents involved in the transaction do not have the same amount of knowledge, resulting in a distortion of incentives and inefficient market outcomes. In the case of health insurance, adverse selection occurs due to buyers having more information than sellers.

Buyers of health insurance know more about their own health problems than insurance companies. Buyers of healthcare insurance might not divulge sufficient and accurate information about their health condition to insurance companies. Insurance companies are often unable to adequately monitor the behaviour of those who seek insurance coverage, and thus risk providing insurance coverage to those with higher health risks. In the absence of limiting conditions (commonly based on age and pre-existing medical conditions), consumers with higher risks are more likely to buy healthcare insurance and opt for higher levels of coverage. Demand for health insurance increases. In addition, the insurance companies would also be forced to pay out a larger portion of claims as more insured sicker buyers utilise healthcare. This forces the insurance company to raise insurance rates. Hence, the price of health insurance in the market would reflect the costs of a sicker than average person because the insurance company, unable to differentiate between healthy & sick individuals, charges a higher premium for all consumers.

As a result, people of average or good health may be discouraged from buying health insurance due to the high premium and this leads to adverse selection against healthy individuals in favour of individuals with health problems. There would thus be an under consumption of health insurance for people of good health and over-consumption of health insurance for people with poor health. This results in an allocative inefficient outcome for health insurance which is necessary in ensuring better access to healthcare services and financial protection against unexpected high expenses in light of rising healthcare costs and an aging population.

Students can also consider the issue of moral hazard.

Moral hazard is a situation in which economic agents take greater risks or use more of a service than they normally would because the costs that would result would not be borne by the economic agents themselves. Here, the information asymmetry is due to the fact that the buyer knows more about his/her intended actions than the seller.

For example, a person who has bought a health insurance, he/she may have no incentive to economise on treatment and would instead demand the best and most sophisticated treatment available. This can push up the demand for healthcare services and inflate both healthcare cost and insurance premiums. As moral hazard exists, there is a distortion of prices as health insurance premiums would increase. This, combined with adverse selection, can lead to financial losses for the health insurance providers, as they are forced to pay out more claims and raise rates. In turn, as rates rise, the adverse selection makes health insurance less affordable for healthier people who should also buy health insurance to protect themselves against unforeseen healthcare expenses. This leads to allocative inefficiency as there is an underconsumption of health insurance by the healthier people.

Conclusion

As imperfect information leads to allocative inefficiency in both the markets for healthcare screening and health insurance, as such there is a need for the government to intervene to maximise society's welfare.

Mark Scheme		
Level	**Descriptors**	**Marks**
L3	For a response which shows strong economic analysis and application in terms of how imperfect information (both information failure & asymmetric information) leads to allocative inefficiency in both the market for healthcare screening and health insurance. The 2 main requirements are: • Imperfect information leading to allocative inefficiency for healthcare screening. • Imperfect information leading to allocative inefficiency for health insurance.	8 – 10
L2	For an answer that gives a descriptive explanation of how imperfect information leads to allocative inefficiency in both the market for healthcare screening and health insurance. OR	5 – 7

	For an answer that explains thoroughly how imperfection information leads to market failure either in the market for healthcare screening or health insurance.	
L1	For an answer that shows knowledge of how imperfection information leads to inefficiency in the market for healthcare screening and/or health insurance. Or an answer that contains inaccuracies.	1 – 4

(b) Discuss the most effective policy measures to ensure an efficient and equitable allocation of resources in the market for healthcare screening. **[15]**

Part (b):

Introduction

The market for healthcare screening fails to achieve allocative efficiency due to both imperfect information as explained in (a) but also due to positive externalities. There is also inequity in the market for healthcare screening. With the rich having more dollar votes than the poor, they will be able to demand relatively more screening services and thus consume more of such services compared to the poor. More resources will be devoted to the production of healthcare services for the rich as the poor may be rationed out of the market. Hence, there is **unfair** distribution of resources when the healthcare screening is a necessity to detect symptoms of diseases such as chronic diseases at the earliest stage possible in life to prevent disabilities and illnesses later in life.

Development

Requirement 1: **Explain how provision of information (Policy 1) works to achieve an efficient and/or equitable allocation of resources in the market for healthcare screening.**

To address information failure, the government can educate the public through mass media and carry out campaigns to encourage the consumption of healthcare screening.

How provision of information works:
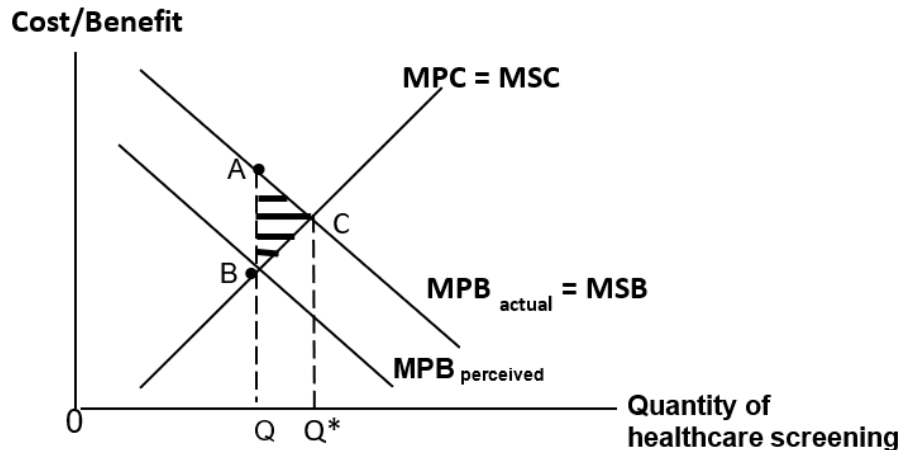
With successful public education, private benefits will be appropriately valued and demand for healthcare screening will increase, MPB perceived will increase to the MPB actual. The private output increased to Q*, which coincides with the socially optimal output. Hence allocative inefficiency would be eliminated.

However, the increase in MPB would also imply a higher price for healthcare screening. This would thus bring about an inequitable outcome limiting access to the poor.

How well it works: (students need to selective of limitations that will address the EFFECTIVENESS of the policy)

However public education merely encourages but does not enforce the higher consumption of healthcare screening, and thus may take a long time before substantial effects can be felt. This is especially when norms and habits take time to be developed, making it even more difficult for consumers to change their consumption patterns and increase consumption levels within a short time period. This policy will thus be ineffective in addressing the problem in the short run. In addition, the outcome is uncertain as it depends heavily on the receptivity of the target audience which is highly unpredictable. This further limits the extent of increase in MPBperceived and thus the effectiveness of the policy in achieving allocative efficiency.

Possible EV: As the general population is more health consciousness today, especially with the influence of celebrities, they are likely to be more receptive to such public campaigns. However, it would also be dependent on how these campaigns reach out to the masses. Social media would be a more effective platform as compared to the conventional advertisements on television.

Requirement 2: Explain how subsidies (Policy 2) works to achieve an efficient and equitable allocation of resources in the market for healthcare screening.

The government could also grant a subsidy per unit to lower the cost of healthcare screening. This will shift the MPC to the right until it intersects MPBperceived and reached the socially optimum level of Q*. The reduction in the unit cost of consuming

healthcare screening thus provides access to the poor who may otherwise not be able to afford to consume it. This reduces inequity.
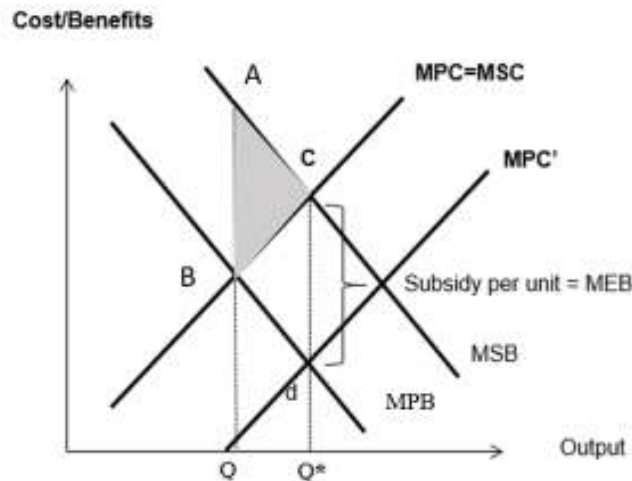
Subsidy can also be justified as the consumption of healthcare screening generates positive externalities which are ignored by the consumers leading to its underconsumption. When an individual undergoes healthcare screening, 3rd parties such as family members would also benefit in terms of savings on healthcare costs as they are less likely to fall ill. These effects occur without compensation. Thus, there is a divergence whereby MSB>MPB, and underconsumption results.

As the consumers internalise the external benefit through the subsidies imposed, MPC falls to MPC'. Hence the private output increases to Q* and allocative efficiency is achieved. Thus, the subsidy given would be effective in addressing both efficiency and equity in the market for healthcare screening.

How well it works:
There is difficulty in measuring the exact value of the MEB in monetary terms, as externalities are "unpriced" effects. If the external benefits are not accurately estimated, the government could either provide too much subsidy or too little subsidy. Too much subsidy given (will causes consumption of the good to be greater that socially optimal output, resulting in welfare losses from over-consumption. Society will be made worst off when the new DWL is larger than the original DWL. In such cases, the imposition of subsidies would thus be ineffective in addressing allocative inefficiency. On the other hand, if the government under-subsidise, the society will always be better off as the DWL is smaller.

Possible EV: The extent of government failure would vary across countries. It is dependent on the government's ability to collect accurate data. This in turn would be dependent on the resources/ technology the government has/ method of data collection/ size of country.

Conclusion:

> The most effective policy to achieve both efficiency and equity would thus be subsidies. Moreover, as compared to provision of information, subsidies would bring about a desirable outcome in the short run and thus would be effective in addressing the problem, especially when the extent of allocative inefficiency and inequity is rather severe.
>
> However, eventually both subsidies and provision of information are necessary to effectively target the different root causes of allocative inefficiency in the market for healthcare screening. While subsidies are necessary to address positive externalities, provision of information would be necessary to address information failure.

Mark Scheme

Level	Descriptors	Marks
L3	For a response which shows strong economic analysis and application in explaining at least 2 policies to ensure efficient and equitable allocation of resources in the market for healthcare screening.	8 – 10
L2	For an answer that gives a descriptive explanation of at least 2 policies to ensure efficient and equitable allocation of resources in the market for healthcare screening. OR For an answer that explains thoroughly either one of the policies to ensure efficient and equitable allocation of resources in the market for healthcare screening.	5 – 7
L1	For an answer that shows knowledge of the policies the government could adopt to ensure efficient and equitable allocation of resources in the market for healthcare screening and/or contains inaccuracies.	1 – 4

Evaluation marks		
A well-explained evaluative judgement about both requirements, that is, for an answer that builds on appropriate analysis to evaluate on the most effective policy to ensure efficient and equitable allocation of resources in the market for healthcare screening. Student will need to address the 2 sources of market failure (information failure & positive externalities) in addition to inequity too.	E3	5

PLUS an overall summative conclusion leading to a well-explained evaluative judgement about which, in any, is the best outcome (so far as required by the question).		
A well-explained evaluative judgement about both requirements **OR** Lower end of E2 (3 marks) which is a well-explained evaluative judgement about one requirement **PLUS** a learned evaluative statement for the second **PLUS** a summative conclusion.	E2	4
A well-explained evaluative judgement about both one requirement **PLUS** a learned evaluative statement for the second.	E2	3
A 'learned" evaluative statement for the two requirements. **OR** A well-explained evaluative judgement about one requirement.	E1	2
A 'learned' evaluative statement for one requirement.	E1	1
No attempt at evaluation.	E0	0

Essay Q4

In 2021, Singapore's inflation rate was 2.3%, while GDP at 2015 prices grew by 8.9% and unemployment rate stood at 2.7%. Total population growth was -4.1%. The resident population below the age of 20 fell by 2.7% while the resident population over 65 grew by 4%.

Source:
singstat.gov.sg

(a) Explain one internal impact and one external impact of the above population changes on the Singapore economy in the future. **[10]**
(b) Discuss whether the above statistics suggest that the standard of living in Singapore economy in 2021 had risen. **[15]**

▪▪▪

a) Explain one internal impact and one external impact of the above population changes on the Singapore economy in the future. [10]

Question Interpretation for part 'a':
Command Word: "Explain" → Define, Illustrate, Elaborate with Economic Concepts
Cue Words/ Key Economic Concepts: • "One internal impact"→ impact to be linked to internal macro goals e.g. economic growth, price stability and full employment   • "One external impact"→ impact to be linked to external macro goals e.g. favourable BOT, stable exchange rate (optional)   • "impact of the above population changes"→ refer to preamble→ i) negative total population growth; ii) resident population below the age of 20 fell by 2.7%; iii) the resident population over 65 grew by 4%   Requirement (1): Explain one internal impact of population changes on the SG economy in the future   Requirement (2): Explain one external impact of population of changes on the SG economy in the future

Introduction
The preamble stated several population changes to the Singapore economy, such as negative population growth, resident population below the age of 20 fell by 2.7% and the resident population over 64 grew by 4%.   This essay seeks to explain one internal impact and one external impact of the population changes on the Singapore economy in the future.

Body/ Development

Requirement (1): Explain one internal impact of population changes on the SG economy in the future

<u>Fall in AD leading to negative actual growth & rise in demand-deficient unemployment:</u>
One population change is the negative population growth. With negative population growth, this means that the population size is shrinking. As a result, this results in a fall in consumption (C) and hence AD, ceteris paribus.

OR

In the future, as more workers leave the workforce, there would be a fall in household savings (S) as those who have retired no longer earn an income and will have to rely on their savings (stock of wealth) to fund their spending. They are likely to be more careful with their spending as their ability & willingness to spend falls. Hence a fall in consumption (C) is likely to happen. In addition, the marginal propensity to consume (MPC) tends to be lower for the elderly too, resulting in a greater fall in C.

On the other hand, as people age and move into retirement, they will draw down on their saving. This would mean that there are less domestic loanable funds available for firms. Due to lower supply of loanable funds, higher interest rates would be charged on loans, causing private investment expenditure (I) to fall as the cost of borrowing rises that result in unprofitable projects now. Overall, C and I fall, and hence AD falls, ceteris paribus.

As shown in Figure 1 below, assuming that the Singapore economy has limited spare capacity, the fall in C leads to a fall in AD, ceteris paribus, resulting in a surplus. This leads to a rise in inventories and producers will decrease output. There is a downward pressure on factor prices causing GPL to fall, and a movement along AD and AS curve. The fall in income arising from the initial fall in AD will lead to a fall in induced consumption, that results in a further decrease in AD that shifts AD1 to AD2. The process continues until a new equilibrium is reached where AD2=AS2. The fall in real output will be by a multiplied amount due to the working of the reverse multiplier where a decrease in one's spending is another's income. Real output decreases from Y1 to Y2.
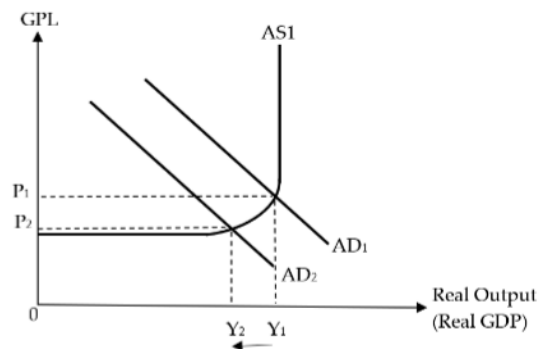

Figure (1)

Link to the question: Thus, one internal impact of the population changes on the Singapore economy in the future would be the fall in real output and GPL results in negative actual growth.

With a fall in AD, it also results in a rise in demand-deficient unemployment. As demand for labour is a derived demand, when firms reduce their production, the demand for labour falls to AD_{L2} as show in Figure 2. Since Keynesian theory believes that wages are sticky downwards due to contractual agreements for example, real wage remains at W_1 instead of falling to equilibrium wage. There is an excess supply of labour at W_1. Demand-deficient unemployment is represented by the horizontal distance of L_DL_S. In addition, demand-deficient unemployment can persist in the longer term i.e. the economy consistently produce at less than full employment when consumers and firms have pessimistic economic outlook that further discourage spending.
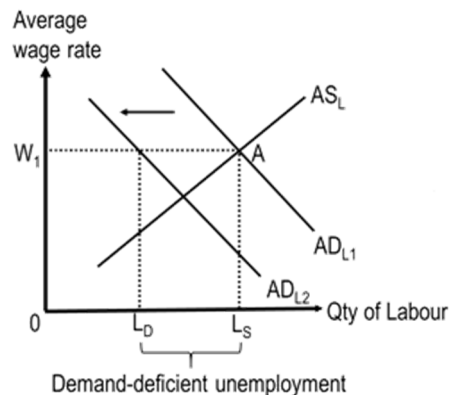

Figure 2

Link to the question: Thus, one internal impact of the population changes on the Singapore economy in the future would be a rise in unemployment.

OR

<u>Fall in SRAS leading to negative economic growth, rise in demand-deficient unemployment and price instability:</u>
The negative population growth, coupled with resident population below the age of 20 falling by 2.7% and the resident population over 65 grew by 4%, implies an ageing population in Singapore and a declining workforce. With an ageing population and a declining workforce, the number of workers leaving the workforce is greater than the number of new workers entering the workforce, and hence, the size of the labour force is reduced. This results in a fall in quantity of labour, and hence supply curve of labour falls, pushing wages up. As such, unit cost of production increases. Ceteris paribus, at every price, profit maximising producers cut back on production and a smaller quantity is supplied. Individual market supply curves shift left. If enough individual market curves are impacted, total output produced by the economy decreases, causing AS curve to fall and

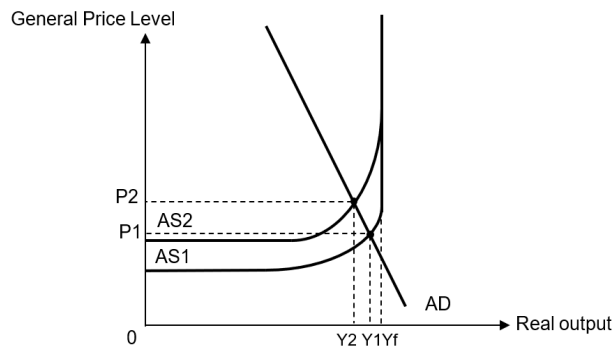shift to the left as shown in Figure 3. Actual growth falls and with a rise in GPL, price instability occurs.

Figure 3

Note: *Students can also link to rising unemployment arising from rising demand-deficient unemployment from a fall in SRAS.*

With rising wages, it also results in a rise in unemployment. In addition, unemployment may persist in the longer term i.e. the economy consistently produce at less than full employment when consumers and firms have pessimistic economic outlook that further discourage spending.

Link to the question: Thus, one internal impact of the population changes on the Singapore economy in the future would be the fall in real output and GPL results in negative actual growth, rise in demand-deficient unemployment and price instability.

OR

Fall in LRAS leading to negative economic growth, rise in demand-deficient unemployment and price instability:
In the long run, with a fall in the quantity of labour, the factor quantity falls, leading to a fall in productive capacity of the economy. Hence, AS falls, and AS curve shifts to the left from AS1 to AS2, leading to a fall in Yf and a rise in GPL, assuming that the Singapore economy has limited spare capacity. This is shown in Figure 4.
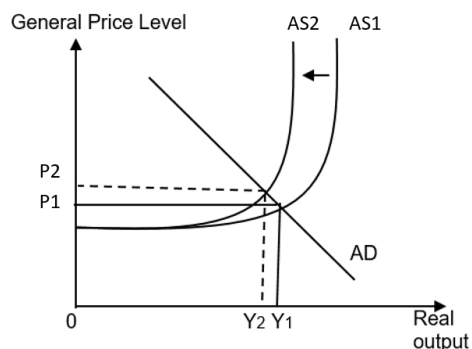

Figure 4

Link to the question: The fall in real output and GPL results in negative potential growth and price instability. With a fall in negative actual growth and negative potential growth, sustained growth is not achieved. Additionally, with a rise in GPL, price instability occurs.

Requirement (2): Explain one external impact of population changes on the SG economy in the future

Loss of export price competitiveness arising from rise in unit COP, leading to unfavourable BOT:
With negative population growth and a declining population, the size of labour force shrinks. This results in a fall in quantity of labour, and hence supply curve of labour falls, pushing wages up. As such, unit cost of production increases. Ceteris paribus, at every price, profit maximising producers cut back on production and a smaller quantity is supplied. Individual market supply curves shift left. If enough individual market curves are impacted, total output produced by the economy decreases, causing AS curve to fall and shift to the left. This raises GPL, which results in a loss of export-price competitiveness as price of exports is now higher. Assuming demand for exports is price-elastic (i.e. PEDx>1), any rise in price leads to a more than proportionate fall in quantity demanded, ceteris paribus, thereby resulting in a fall in total revenue earned from exports. Import expenditure also rises as imports are relatively cheaper now. Hence, (X-M) falls, worsening the Balance of Trade.

OR

Loss of export price competitiveness arising from fall in productive capacity, leading to unfavourable BOT:
With negative population growth and a declining population, the size of labour force shrinks. This results in a fall in quantity of labour, leading to a fall in factor quantity. Hence, productive capacity of the economy falls, resulting in a fall in AS and AS curve shifts left. GPL rises, resulting in a loss of export-price competitiveness as price of exports is now higher. Assuming demand for exports is price-elastic (i.e. PEDx>1), any rise in price leads to a more than proportionate fall in quantity demanded, ceteris paribus, thereby resulting in a fall in total revenue earned from exports. Import expenditure also rises as imports are relatively cheaper now. Hence, (X-M) falls, worsening the Balance of Trade.

Depreciation of currency:
With a fall in (X-M) due to a rise in X and M earlier, it will lead to a fall in demand for S$ and a rise in supply of S$. Hence, the demand curve shifts to the left from D1 to D2 while supply curve shifts to the right from S1 to S2, leading to a surplus (QsQd) at original price and a downward pressure on price. The surplus is gradually reduced until equilibrium is reached, where the new demand curve D2 cuts the original supply curve S1. Hence, the currency (S$) depreciates from R1 to R2 as shown in Figure 6 below.
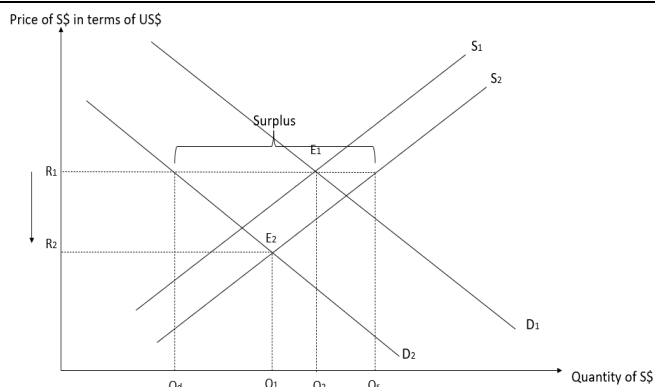
Figure 6

Note: Students can explain any other internal or external impacts, as long as they are relevant and appropriate.

Mark Scheme

Level	Knowledge, Application, Understanding, Analysis	Marks
L3	• Analytical explanation of one internal **and** one external impact of the population changes on the Singapore economy in the future.	8-10
L2	• Limited rigour in analysing one internal **and** one external impact of the population changes on the Singapore economy in the future • Unbalanced analysis e.g. only 1 requirement is explained • Inaccurate analysis/ analysis has missing gaps	5-7
L1	• Largely descriptive • Some knowledge of internal and external impacts, with no contextualisation to the Singapore economy	1-4

b) Discuss whether the above statistics suggest that the standard of living in Singapore economy in 2021 had risen. [15]

▪▪

Question Interpretation for part 'b':

Command Word: "Discuss"→ Thesis-Antithesis-Synthesis/ 2-sided analysis

Cue Words/ Key Economic Concepts:
- "above statistics"→ refer to preamble: real GDP per capita = 13%; unemployment rate= 2.7%; inflation rate = 2.3%
- "standard of living"→ link to material & non-material SOL
- "SOL…had risen"→ link to improvement in both material & non-material SOL

Requirement (1): Explain how the above statistics suggest that SOL in SG economy in 2021 had risen
Requirement (2): Explain how the above statistics do not suggest that SOL in SG economy in 2021 had risen → limitations of using these statistics in assessing SOL

<table>
<tr><td colspan="1" align="center">Introduction</td></tr>
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Definitions:
Standard of living (SOL) refers to their well-being of the people in a country. It comprises both material and non-material SOL. There are two aspects of standard of living, namely the <u>material</u> well-being and <u>non-material</u> well-being.
- The material well-being of an individual is determined by the quantity of goods and services enjoyed by an individual.
- The non-material well-being is the quality of life 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.

Identify the indicators used:
- As mentioned in the preamble, there are 3 main macroeconomic indicators---GDP at 2010 prices with total population growth, inflation rate and unemployment rate.

Address the question:
- Using the macroeconomic indicators mentioned, this essay seeks to discuss whether the above statistics suggest that SOL in the Singapore economy in 2021 has risen.

Body/ Development
Requirement (1): Explain how the above statistics suggest that SOL in SG economy in 2021 had risen **Rise in real GDP per capita growth leading to a rise in material and non-material SOL** Firstly, as mentioned in the preamble, the GDP at 2015 prices grew by 8.9% while the total population growth was -4.1%. GDP at 2015 prices refer to measuring at constant 2015 (base year) prices, which is 2015. Thus, GDP at 2015 prices refers to real GDP. Real GDP refers to inflation-adjusted value of final goods and services produced within the geographical boundaries of a country (i.e. Singapore), usually a year. Since the real GDP growth is 8.9% this means that the real GDP in 2021 is 8.9% higher than the real GDP in 2020 (derived from the formula: $[\text{Real GDP}_{2021} - \text{Real GDP}_{2020}] / \text{Real GDP}_{2020} \times 100\% = 8.9\% \rightarrow \text{Real GDP}_{2021}$ is 8.9% higher than real GDP_{2020}). On the other hand, -4.1% total population growth implies that population size in 2021 is 4.1% smaller than the population size in 2020. Since the total population growth is slower than the real GDP growth rate, this means that there is a rise in real GDP per capita growth rate of 13% (8.9%-(-4.1%) = 13%). *Note: Students can choose to explain implications on material or non-material SOL* ***[Direct implication on SOL]:*** It is important to take into account population because if the population size increases faster than real GDP growth, then material SOL would actually fall. With a rise in real GDP per capita growth, this implies that on average, incomes and purchasing power have risen for each person in Singapore. This results in a rise in ability to buy goods and services, and hence higher quantity of goods and services consumed, thereby raising material SOL. ***[Indirect implication on SOL]:*** At the same time, with higher real GDP per capita, this means that households will fall into higher income tax brackets under a progressive tax system, resulting in them paying a larger proportion of their income as personal income taxes, hence tax revenue increases. There is also a wider tax base as more people are employed and hence earning incomes that can be taxed upon. On the other hand, government expenditure on unemployment-related benefits is likely to fall as more factors of production including labour are hired to increase production. With a rise in tax revenue collected and a fall in government expenditure, government budget will improve. Assuming that the improvement is large and persistent, there will be a budget surplus. Government thus can tap on the budget surplus to implement appropriate policies to raise SOL. For instance, government can help the lower-income and the disadvantaged by subsiding housing, healthcare or even education. This will raise their quality of life, resulting in higher non-material SOL. Alternatively, the government may give out subsidies, leading to a higher quantity of goods and services consumed and hence higher material SOL. <u>Link back to the question</u>: Hence, the rise in in real GDP per capita leads to a rise in material and non-material SOL, indicating that the above statistics suggest that SOL in SG economy in 2021 had risen.

EV→ [Criterion: Changes in income distribution ignored] [Reasoning] However, even if real income per head increased, we still cannot say that everyone in the country is better off without knowing how the increase in real income is distributed among the people in the country. Since an economy is typically characterised by unequal distribution of income, an increase in real income per capita over time does not indicate that the well-being of *every* individual has improved. Even if there is a rising income inequality that is not captured in data, this means that real GDP growth *may not be equally enjoyed* by all. If the greater availability of goods and services was extended mainly to the higher-income/higher-skilled, then there will be greater income inequality and material SOL 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, thereby presents as a limitation. To have a more accurate assessment of welfare, we need to supplement real income per head figures with data on how the increase in real national income is distributed among members of the population. For example, the government could make use of Gini coefficient data to measure the extent to which the distribution of income among households deviates from a perfectly income distribution. ***[Opinion]*** In Singapore, the Gini coefficient after adjusting for government transfers fell in 2021 from 0.444 to 0.386, the second lowest level since 2000. Thus, this suggests that the SOL had risen as there is a rise in real income per head even after adjusting for income inequality.

Low unemployment rate leading to a rise in material and non-material SOL, assuming that the unemployment rate had fallen from the previous year 2020

Unemployment level of labour refers to the number of people in the working age population who are available for work at current wage rates but are without a job. Since the unemployment rate is 2.7%, this means that 2.7% of the people who are available for work and looking for a job are unable to find a job. It is important to note that the data is static, meaning that it cannot be used in itself to measure material SOL as we would need information from 2020 and the years below to measure the change in SOL. In this case, towards the end of 2021, many COVID-19 restrictions were removed, and this likely led to a rise in employment levels as demand for goods and services began to rise. As such, we can assume that unemployment rate would have fallen to 2.7%.

[Direct implication on SOL]: Assuming that the unemployment rate is low, it provides some slack (i.e. the economy is now producing with spare capacity) which can permit the economy to expand. With economic growth, average incomes and purchasing power will increase, resulting in a rise in the ability to purchase goods and services, and hence the quantity of goods and services consumed will rise. This will lead to a rise in material SOL. At the same time, lower unemployment rate will result in lower stress levels and crime rates, and thus quality of life and non-material SOL rises.

Link back to the question: Hence, the low unemployment rate leads to a rise in material and non-material SOL, indicating that the above statistics suggest that SOL in SG economy in 2021 had risen.

Note: *Students could also suggest that unemployment rates could have risen as compared to previous year in 2020.*

Inflation rate = not so useful as it is already embedded in real GDP per capita as an indicator
Secondly, as mentioned in the preamble, the inflation (as measured by Consumer Price Index (CPI)) was 2.3% in 2021. In this case, inflation rate is not so useful to assess changes in SOL i.e. whether SOL in 2021 had risen. This is because the previous indicator, real GDP per capita, has already taken into account changes in the general price level. Hence, this indicator is not so useful to conclude that SOL in SG economy in 2021 had risen.

Requirement (2): Explain how the above statistics do not suggest that SOL in SG economy in 2021 had risen→ Limitations of using these statistics in assessing SOL → students just need to choose 1-2 to elaborate.

Real GDP per capita growth statistics:
1) Non-material SOL ignored
However, the above statistics do not suggest that SOL in Singapore had necessarily risen in 2021 as they do not take into account non-material SOL. The non-material well-being is influenced by environmental factors such as degree of urban crowding, crime rates, security of the country against terrorist acts, as well as by socio-economic factors such as life expectancy, infant mortality rates, availability of health care impacting the health quality of life and time available for leisure. For instance, in Singapore, the production of more goods and services could have led to greater pollution and stress levels from longer working hours especially if the larger output was not because of higher productivity, which consequently worsen quality of life through health and leisure of people. In addition, in 2021, Singapore was still in the midst of COVID-19 pandemic, which created a lot of stress and anxiety in Singaporeans and consequently reduce their quality of life and thus lower non-material SOL. Overall, this implies that the improvement of material SOL will be at the expense of non-material SOL. As such, overall SOL cannot be said to have improved. Hence, the real GDP per capital growth statistics alone is an incomplete measure of standards of living. It only reflects changes in material well-being and fails to consider changes in non-material well-being, thereby presents as a limitation.

Link back to the question: Thus, the above real GDP per capita statistics are unable to confirm/ do not suggest that SOL in Singapore economy in 2021 had risen.

2) Measurement problems (undeclared economic activities):
Secondly, the increase in income figures may understate the improvement in material welfare if the underground/ informal economy has been growing at a faster rate than the growth in the legal economy. People may not declare to the tax authorities the incomes they earn to evade paying tax. In Singapore, the estimated size of the Singapore's informal economy is 10.4% of real GDP at PPP levels. In addition, in Singapore during COVID-19 period, there was a plethora of home-based businesses, which may lead to a rise in underground economy if taxes were not paid. As a result, the national income statistics

(e.g. real GDP per capita growth) is understated due to the presence of the informal economy, and thereby presents as a limitation.

Link back to the question: Thus, the above real GDP per capita statistics are unable to confirm/ do not suggest that SOL in Singapore economy in 2021 had risen.

3) Measurement problems (non-marketed goods and services):
Thirdly, there are measurement problems of using real GDP per capita growth rate on the Singapore economy over time. Non-marketed goods and services could be one instance. Goods and services which are produced but not traded or exchanged without money changing hands go unrecorded (barter trading). For example, domestic services provided by homeowners and voluntary work are not included in the official figures. In Singapore, there were 118,700 mothers in 2019 who were not in the work force because they are caring for their children and family. The proportion of goods and services which people produce for themselves, and the amount of voluntary work undertaken vary over time. Hence, the SOL may be understated by the extent of non-marketed activities, and thereby presents as a limitation.

Link back to the question: Thus, the above real GDP per capita statistics are unable to confirm/ do not suggest that SOL in Singapore economy in 2021 had risen.

Synthesis & Evaluative Conclusion

Overall, whether the above statistics can suggest that SOL in Singapore economy in 2021 had risen or not *depends on:*

[Criterion: Whether the limitations can be overcome with solutions to ensure a more accurate representation of SOL] [Reasoning] As elaborated above, there are various possible limitations that may pose hindrances to the assessment of changes in SOL i.e. whether SOL had risen or worsened. Thus, it may be better if there are other accompanying relevant indicators beyond the above statistics. For instance, we may consider using the Human Development Index (HDI). The HDI is a summary measure of average achievement in three key dimensions of human development – a long and healthy life, being knowledgeable and having a decent standard of living. It is a composite indicator that measures both material and non-material SOL and is expressed as a value between 0 and 1, where 1 is the best possible score and zero is lowest possible score 0. The higher the HDI index (i.e. closer to 1) the higher will be the level of standard of living, in terms of both material and non-material aspect. This is because an increase in a country's HDI value would have been attributed to an increase in life expectancy index, education index and/or GNI index. Overall, the HDI can complement the above indicators to provide a more holistic assessment of changes in SOL, which can then allow us better to assess whether SOL had risen.

[Criterion: Data collection methods] [Reasoning] This is because there is no official way to collect data in any country, including Singapore i.e. there are different ways of computing

unemployment rates. This thus presents a problem that may lead to inaccurate comparisons of SOL e.g. claimant count vs labour force surveys across time, and hence may not necessarily results in an accurate assessment of changes in SOL. In addition, real GDP statistics may not always offer an accurate assessment of changes in SOL because it depends on the relative weights and the base year chosen for comparison. *[Opinion]* However, in the context of Singapore, the government periodically updates its relative price weights to a more recent year. For instance, the real GDP statistics now incorporate annually reweighted chain volume measures (CVM) of GDP, which allows for a timely annual update of the weights used and ensures that CM compiled are reflective of the current economic landscape. This will not only allow for better comparison of SOL in Singapore across time, but also align with those of other economies, such as Australia, Hong Kong, Canada and the United States, thereby improving the international comparability of Singapore's real GDP estimates.

Note: Students can choose any criterion/ criteria to elaborate, as long as they are appropriate and relevant.

Mark Scheme:

Level	Knowledge, Understanding, Application, Analysis	Marks
L3	For a good analytical assessment of whether the given statistics in the preamble are able to suggest that SOL had risen in the Singapore economy in 2021.	8 – 10
L2	For a correct but underdeveloped explanation. For an explanation on how the given statistics in the preamble are able to suggest that SOL had risen in the Singapore economy in 2021, but with some missing gaps in analysis. Response may not necessarily link back explicitly to effectiveness of policy. *OR* For 1 requirement that is thoroughly analysed and evaluated---Cap at 6m.	5 – 7
L1	Ability to identify one or two of the given statistics in the preamble and how they are able to suggest that SOL had risen in the Singapore economy in 2021. Answer lacks depth and content. Smattering of points.	1 – 4
Evaluation		
E3	Clear and sound justification on whether the given statistics in the preamble is able to suggest that SOL has risen in the Singapore economy in 2021.	5

E2	Some justification on whether the given statistics in the preamble is able to suggest that SOL has risen in the Singapore economy in 2021.	3 – 4
E1	Mainly unexplained judgments. *OR* Assertive evaluative statements without justification.	1 – 2

Essay Q5:

Singapore experienced brief periods of deflation in 2015, 2016 and 2020 but, more recently, inflation has been over 5%.

Source: statista.com/statistics/379423/inflation-rate-in-singapore

(a) Explain the main causes of a rise in inflation. [10]
(b) Discuss the view that inflation is always preferable to deflation. [15]

Part (a)

Inflation is defined as a period of sustained increase in the general price level. It is measured by a rise in the consumer price index (CPI). CPI measures the average price changes in a fixed basket of goods and services commonly purchased by the households compared to a base year. The inflation rate is the annual percentage change (rate of change) in CPI. The rise in general price level of goods and services could possibly be a result of demand-pull inflation and cost-push inflation by causing a rise in aggregate demand (AD) and a fall in aggregate supply (AS) respectively.

Requirement 1: Explain demand-pull inflation

Firstly, demand–pull inflation is defined as a situation where AD is persistently greater than AS, close to or at full employment of all resources, generating a sustained increase in the general price level.

An excessive increase in aggregate demand could be due to the increase in any component of the aggregate demand, since aggregate demand is the sum of economy's consumption, investment, government expenditure and net exports.

Step 1: Explain the trigger

When Singapore experiences a <u>stronger economic growth outlook</u>, this results in an <u>increase of business and consumer confidence</u>. With positive expectations about the future economic outlook, the expected profits to investors on their investment will likely increase, thus causing investors to revise profit projections upwards and hence step-up or increase their investment plans. Hence, investment expenditure will increase. Moreover, with a more optimistic outlook on the future economy, consumers will be more willing to spend and thus consumption expenditure will increase. The <u>increase in investment and consumption expenditure will result in an increase in AD, ceteris paribus.</u>
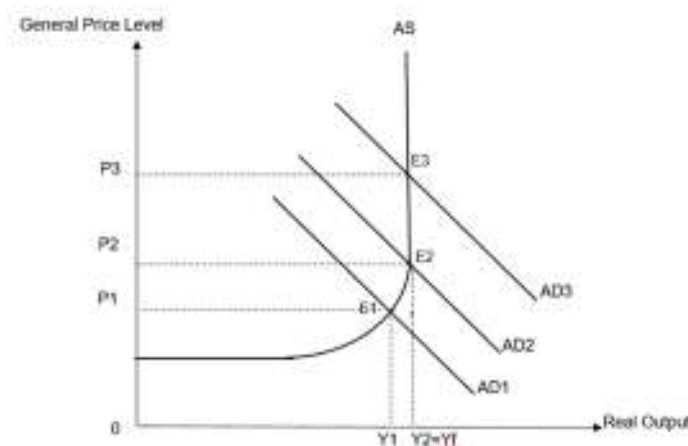
Step 2: Explain the adjustment process from one equilibrium to another

As illustrated in Figure 1 above, assume that the Singapore economy is operating near full employment where the initial equilibrium is at E1. The increase in consumption and investment expenditure increase AD causing total spending to exceed total output resulting in a shortage at OP1. This leads to a fall in inventories which provides an incentive for producers to increase output to meet demand. As there is limited spare resources, firms will have to bid up factor prices causing GPL to rise. There is a movement up along the AD & AS curve.

The rise in income arising from the initial rise in AD causes a rise in income-induced consumption that results in a further increase in AD. As one's spending becomes another's income, there will be multiple increases in AD until a new equilibrium is reached at E2 where AD2 = AS1. Real output increases by a multiple from Y1 to Y2, while GPL rises from P1 to P2.

Step 3: Complete inflationary process analysis (AD2 → AD3)

However, as AD continues to increase from AD2 to AD3, due to for example, **greater consumer confidence** which leads to an increase in consumer expenditure on domestic goods and services, the persistent increase in AD creates a situation of sustained excess demand in the economy and brings about a sustained increase in general price level and hence demand-pull inflation and a rise in inflation.

As such, demand-pull inflation is made worse at full employment since all of the country's resources are fully utilised and output cannot be further increased to meet new, higher aggregate demand. At full employment, the same increase in AD brings about a **sharper rise in GPL** and hence a **rise in inflation**.

Requirement 2: Explain cost-push inflation

Cost-push inflation is defined as a situation where persistent increases in the unit cost of production independent of changes in AD generates a sustained increase in general price level.

Step 1: Explain the trigger: Rising cost of imported raw materials

Singapore, being a small economy that lacks natural resources, is highly reliant on imported inputs. Therefore, an <u>increase in price of imported input</u>, such as an increase in global oil prices, would contribute to rising inflation in Singapore. Since crude oil is an important input for generation of power and electricity, as well as for industrial/ manufacturing production, its demand is price inelastic. Therefore, the increase in global oil prices say due to the <u>on-going Ukraine war</u> will lead to higher import expenditure which results in higher unit cost of production.

Faced with <u>higher cost of production</u>, ceteris paribus, at every price, <u>profit maximising producers cut back on production</u> and a smaller quantity is supplied. <u>Individual market supply curves shift left</u>. If <u>enough individual market supply curves are impacted</u>, <u>total output</u> produced by the economy <u>decrease</u>, causing the AS curve to <u>shift left from AS1 to AS2</u> as shown in Figure 2.

Note: Other possible triggers include SS-chain disruption form covid-19, rise in food prices due to climate changes, etc
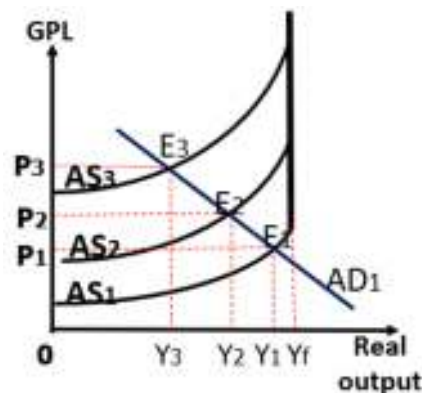
Step 2: Explain the adjustment process from one equilibrium to another

As illustrated in Figure 2, as AS curve shifts left, with AD remaining unchanged, this leads to a **shortage** of output which provides an <u>incentive for producers to raise prices causing GPL to rise</u>. There is a <u>movement up along the AD and AS curves.</u> The process continues until a <u>new equilibrium is reached at E2 where AD = AS2</u>.

Step 3: Complete inflationary process analysis (AS2 → AS3)

One important condition for cost-push inflation to occur is that unit cost of production must be increasing persistently. Oil prices are likely to see **even sharper increases** as <u>oil sources & raw materials experience further depletion</u>. As prices of oil and imported raw materials continue to <u>rise sharply</u>, unit cost of production <u>rises even further</u>. AS curve shifts further from AS2 to AS3. The higher unit cost is passed onto the consumers and price increases from P2 to P3. Hence, a persistent <u>sharp rise in costs</u> of imported raw materials and oil will lead to the AS curves shifting leftwards continuously, resulting in a <u>sharper rise in the general price</u> level hence causing cost-push inflation and a **rise in inflation**.

Conclusion:

A <u>rise in inflation</u> such as the once observed in 2021-2022 will be a great concern to the government and this will be discussed in part (b).

Mark Scheme:

| Level	Knowledge, Application, Understanding & Analysis	Marks
L3	For an answer that uses relevant analysis to explain one demand-side and one supply-side cause of a rise in inflation in an economy. To access top L3, need to address "rise" in inflation.	**8-10**
L2	For an answer that gives a descriptive explanation of one demand-side and one supply-side cause of inflation in an economy. OR For an answer that explains thoroughly either one demand-side or one supply-side cause of inflation in an economy.	**5-7**
L1	For an answer that shows knowledge of causes of inflation in an economy and/or contains inaccuracies.	**1-4**

Part (b)

Introduction

Inflation can be caused by either a persistent rise in AD (demand-pull inflation) or fall in SRAS (cost-push inflation). Deflation on the other hand, can be caused by either a persistent fall in AD or an increase in AS, usually due to lower unit costs of production. Whether inflation is always preferable to deflation would depend on a few factors.

Requirement #1: Explain why inflation is preferable to deflation

***Step 1**: Explain the **Cost of Malign Deflation** in terms of economic growth, unemployment, material and & non-material SOL*

Inflation is preferable to deflation because <u>deflation could be prolonged and harder to resolve compared to inflation,</u> especially if it is **malign deflation**, resulting in damaging impact for the economy. When there is malign deflation, real output tends to be falling in the economy as well. In addition, once prices start falling, consumers will expect prices to fall in future and be less willing to spend in the current period, leading to a fall in C. This fall in spending creates <u>further deflationary pressure in the economy</u>. Firms will also cut down production as demand for goods and services fall. Investment decrease as there is no incentive to expand production levels. This will result in a sharp fall in AD which then leads to a multiplied fall in real output and hence, **negative growth**. There will be a fall in real income, which means that consumers' purchasing power falls, giving them less ability to purchase goods and services. **Material SOL** in the economy falls.

In addition, as a result of negative growth, the demand for factors of production such as labour fall. Aggregate demand for labour (ADL) falls from ADL1 to ADL2, and assuming wages are sticky downwards at W1 due to contractual agreements, this leads to **demand deficient unemployment** of $L_D L_S$.
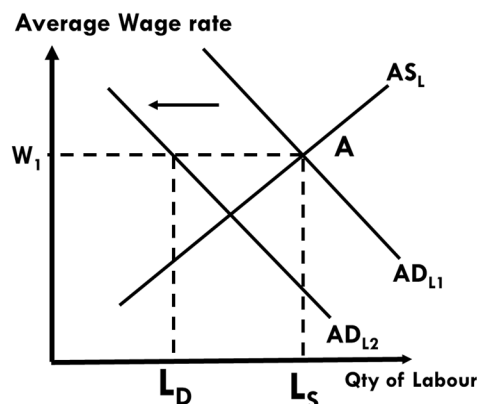
This rise in unemployment leads to greater financial stress for the unemployed, resulting in a fall in the quality of life and hence **non-material SOL**, making the deflationary problem especially damaging.

Step 2: Compare against _Benefits of Mild Demand Pull Inflation_

[Bridge] On the other hand, the fall in AD resulting from the rise in GPL due could possibly **self-correct the problem** of demand-pull inflation as the rise in AD would be curbed.

High inflation could suggest significant rise in costs of production, leading to a fall in the firms' confidence and hence a fall in the volume of investments.

Investors have a poorer economic outlook as they anticipate profitability of investments to fall, resulting in a leftward shift of the MEI, where volume of investments fall at every interest rate. Investment falls, ceteris paribus AD falls. Consequentially, the initial rise in AD is curbed, **self-correctly the problem of inflation.**

OR

On the other hand, **mild demand-pull inflation** can stimulate output and employment.

Moderate rise in GPL due to ↑AD near full employment could suggest an increase in price of goods & services produced in the economy. Firms would enjoy an increase in total revenue but total costs may not rise due to contractual agreements. This results in an increase in profits earned. This prospect of higher returns would prompt profit driven firms to increase their investment volume through a rightward shift of MEI. This stimulates further increase in AD, output & employment as well as higher future profits for firms.

Step 3: Answer the Question: _inflation is preferable to deflation_

[Link] Hence, mild demand pull inflation is preferable to malign deflation as **prolonged periods of malign deflation** and a **deflationary trap** would be **harder to resolve** since any attempt by the government to boost AD may be **limited** in its **success** given the poor sentiments.

This is because policies like monetary and fiscal policy are sometimes deemed ineffective. For example, reducing interest rates will **not stimulate consumption and investment** if consumers and businessmen are pessimistic about the future.

Optional point:

Furthermore, if the nominal interest rate is brought very close to zero, deflation implies positive real interest rates. If the deflation rate rises faster than the fall in nominal interest rates, real interest rates will rise causing the economy to stagnate.

If there is a lot of household or corporate debt in the economy e.g. UK & USA, a deflation rate that rises faster than the fall in interest rate raises real interest rates and **increase**

the debt in real terms. This will force households and businesses to cut spending. Hence, deflation can intensify a slump by raising real interest rates.

[Link] Hence, inflation is preferable to deflation due to the negative effects deflation brings about to real output and SOL.

[E/Criterion: Cause of deflation] *Having said that, it depends on the type of deflation or inflation we are referring to. Generally speaking, benign deflation poses fewer problems for an economy since real output is still increasing.*

[E/Reasoning] *If the fall in GPL was due to benign deflation say due to a rise in productivity, firms and households may continue to spend given the positive economic outlook. While GPL is falling, real output is still increasing, thus boosting consumers' and investors' confidence.*

[E/Opinion] *Hence, deflation may not impact growth and employment so significantly compared to inflation and could be preferred.*

Requirement #2: Explain why deflation is preferable to inflation

*Step 1: Explain the **Cost of cost-push inflation** or **severe inflation***

In addition, deflation is preferable to inflation as the **effects** of inflation could be more detrimental than deflation for an economy.

Should there be **cost-push inflation** in an economy, the fall in SRAS (as explained in part (a)) will reduce production, employment and investment. This is because firms which cannot absorb the higher factor prices might find it difficult to survive. With no excess demand, these firms are unable to pass on the higher cost to the consumers. As firms cut back on production instead, demand for labour falls hence increasing **unemployment**.

High rates of inflation also reduces a country's international competitiveness and leads to **a less favourable balance of trade** and results in a **weakening of the exchange rate**.

- Inflation reduces the competitiveness of a country's exports. Therefore, a country suffering from higher inflation rate than other competing countries will experience a fall in the quantity demanded of her exports. The quantity demanded for exports by foreigners will fall more than proportionately assuming that PEDx >1 as foreigners will switch to cheaper alternatives from other countries, leading to a fall in export revenue.
- At the same time, a country suffering from a higher inflation rate relative to its trading partners will likely increase the demand for imports as foreign goods become relatively cheaper than domestically produced goods. This results in an increase in import expenditure.
- A decrease in export revenue and an increase in import expenditure will lead to a less favourable BOT.

[Bridge] On the other hand, deflation could <u>improve a country's international competitiveness</u> resulting in a <u>more favourable balance of trade</u>.

- A country experiencing from higher deflation rate than other competing countries will experience an increase in the quantity demanded of her exports. E.g. China in 2023. The quantity demanded for exports by foreigners will increasel more than proportionately assuming that PEDx >1 as foreigners will switch to cheaper alternatives from other countries, leading to an increase in export revenue.
- At the same time, a country suffering from high deflation rate will likely decrease the demand for imports as foreign goods become relatively more expensive than domestically produced goods. This results in a decrease in import expenditure.
- An <u>increase in export revenue</u> and a <u>decrease in import expenditure</u> will lead to a more favourable BOT.

[Link] Hence, deflation is preferable to inflation as deflation may not impact growth and employment so significantly compared to inflation.

<u>Optional point:</u>

<u>Fixed nominal income</u> receivers suffer more in times of inflation compared to <u>variable income earners</u>.
- Given a constant money income, an increase in the general price level will result in a <u>fall in real income</u> indicating a fall in the volume of goods and services that money income can buy.
- On the other hand, variable income earners, whose incomes are expressed as a percentage of the value of the work undertaken, <u>may see a rise in their nominal incomes during inflation</u>. For example, property agents may actually obtain higher commission during inflation as property prices increase. This means that the <u>real incomes of the variable income earners actually remain unchanged during inflation.</u>
- Since fixed income earners such as welfare recipients tend to be poor, and variable income earners tend to be rich**, inflation can worsen inequity as the poor finds it even more difficult to access basic goods and necessities due to the fall in their real incomes.**

Step 2*: Compare against **Benefits of Mild deflation or Benign Deflation***

[Bridge] On the other hand, in the case of a fall in GPL during <u>deflation</u>, <u>fixed nominal income earners</u> would have <u>greater purchasing power</u> and hence <u>better material SOL</u>. <u>Access to essential goods and services</u> are also less likely to be compromised, hence <u>non-material SOL is maintained/ improved</u>.

Step 3*: **Answer the Question***: *Deflation is preferable to Inflation*

[Link] Hence, deflation is preferable to inflation as deflation may not impact fixed income earners and SOL so adversely as compared to inflation.

Evaluative conclusion & judgment

In conclusion, whether <u>inflation is **always** preferable to deflation</u> depends on a few factors, such as the **duration** and **magnitude** of deflation/inflation, whether or not the government has put in place **appropriate measures** to address the negative consequences, and the cause or type of deflation/inflation.

[EV/Criterion: <u>Ability of the government to address the problem</u>]

[EV/Reasoning + Opinion] Since it is generally more difficult to combat (malign) deflation than inflation as explained above, it is likely that (mild demand pull) inflation is preferable to deflation. This is especially in the long run, as policies such as supply-side policies which take time to see effect, and aimed at increasing the economy's productive capacity, can help to lower inflationary pressure. As such, over time, deflationary problems (especially if malign deflation) tend to be more damaging on an economy. That said, it also depends largely on the effectiveness of the policies as well. Should the supply-side policies that are aimed at combating inflation problems not be effective, then it is also possible that deflation is preferable to inflation, given that inflation can erode purchasing power of individuals (especially for fixed income earners) in an economy and lower material SOL.

[EV/Criterion: <u>Cause/Type</u> of deflation/inflation]

[EV/Reasoning + Opinion] Whether inflation is preferable to deflation also depends on the **cause** or **type**. Deflation / inflation might be a signal of a well-performing economy depending on its cause or type, and so not considered damaging. Generally, <u>benign deflation</u> is preferred because it reflects an improving economy enjoying sustained growth as the fall in the general price level is accompanied by actual and possibly potential growth. With respect to inflation, generally mild <u>demand-pull inflation</u> is preferred as it might be seen as a signal that there is strong growth in a highly competitive economy whose output is both price and non-price competitive.

[EV/Criterion: <u>Size</u> and <u>duration</u> of deflation/inflation]

[EV/Reasoning + Opinion] Regardless of whether it is deflation or inflation, should there be large fluctuations in price levels over a short period of time, this generally reflects greater instability in prices and hence greater distortion of price signals. Consumers and firms are hence less able to make consumption and investment decisions due to a fall in confidence. This causes a fall in C & I and hence AD, giving rise to a greater contractionary impact on economy, which may lead to negative growth and rise in unemployment. Hence, neither deflation nor inflation, if too excessive, is preferred for any economy.

Level	Knowledge, Application, Understanding & Analysis	Marks
L3	Well developed and balanced analysis with good scope and depth.	8-10
L2	Undeveloped but balanced answer, showing why inflation or deflation is preferred, with the use of appropriate analysis. Well-developed but one-sided analysis on explaining either inflation OR deflation is preferred	5-7
L1	Descriptive answer lacking economic analysis or contains many conceptual inaccuracies.	1-4
Evaluation		
E3	A well-explained evaluative judgement about both requirements and an overall summative conclusion leading to a well-explained evaluative judgement about which, in any, is the best outcome (so far as required by the question). Uses criteria to compare and address the question (e.g. duration, magnitude of the deflation/inflation, etc.).	5
E2	A well-explained evaluative judgement about both requirements OR Lower end of E2 (3 marks) which is a well-explained evaluative judgement about one requirement PLUS a learned evaluative statement for the second PLUS a summative conclusion*.	4
	A well-explained evaluative judgement about both one requirement PLUS a learned evaluative statement for the second.	3
E1	A 'learned" evaluative statement for the two requirements. **OR** A well-explained evaluative judgement about one requirement.	2
	A 'learned' evaluative statement for one requirement.	1

Essay Q6:

While globalisation has brought about many benefits, it has also brought about challenges, such as loss of export competitiveness, rising unemployment, widening income gap, and environmental degradation.

(a) Explain how globalisation leads to non-sustainable and non-inclusive growth. [10]
(b) Discuss whether the use of tariffs is the best approach for governments to maintain export competitiveness and reduce unemployment. [15]


Suggested Answers to Part (a):

Introduction:
Globalisation is the process through which an increasingly free flow of goods and services, capital, labour, and technology leads to the integration of economies and societies. It is brought about by improvements in information and communication technology, lower transportation costs and economic liberalisation, allowing countries to enhance their comparative advantage.

Requirement #1: Explain how globalisation leads to non-sustainable growth.
*Note: Students should explain how globalisation leads to sustained growth as well, and this can be embedded **either** within requirement #1 **or** requirement #2.*

Globalisation opens opportunities to expand trade between countries, giving these countries access to enlarged global markets. Demand for their exports rises, increasing export revenue. Globalisation also increases capital flows across countries as firms are more able to invest in foreign countries that offer low-cost conditions. Volume of foreign direct investment (FDI) increases for these countries. With the increase in net export revenue and FDI, AD increases from AD1 to AD2. Real output increases by a multiplied amount from Y1 to Yf1 and there is actual growth.

In addition, the inflow of capital and labour from FDI brings along with them skills and knowledge. This allows for an increase in the quantity and quality of an economy's resources, increasing the productive capacity of the economy. AS increases from AS1 to AS2, and there is potential growth. Full employment output increases from Yf1 to Yf2.
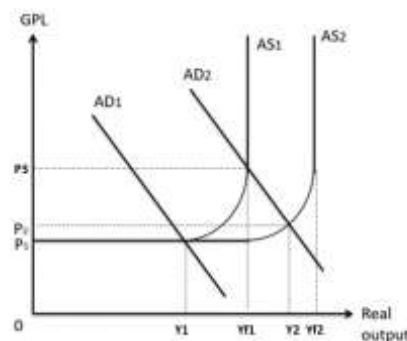
With actual and potential growth, a country can thus achieve sustained growth over time, where real output further increases with lower GPL or stable prices.
*Explain why sustained growth that is generated may be **non-sustainable**:*

However, despite the economy enjoying sustained growth, it might be non-sustainable. This is because with the higher volume of trade that takes place, there will be much greater production of goods and services. This leads to faster depletion of resources. In addition, there would be an increase in the transport of goods and services globally due to higher trade. Furthermore, to reap the benefits of globalisation, firms might also choose to produce using methods that are of lower cost, which may tend to be more pollutive or move their production processes to countries that have weak pollution controls and export from there. The increased transport of goods and services, together with the above methods of production release harmful emissions into the atmosphere, which leads to negative externalities and increased health risks and respiratory problems for others.

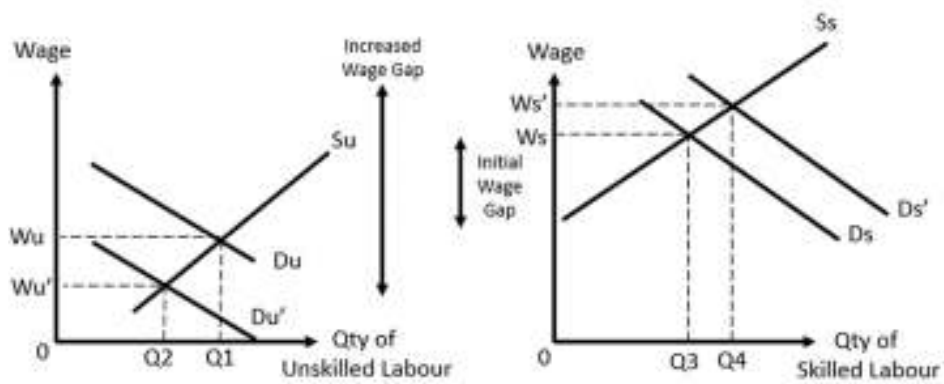Thus, any growth brought about by globalisation is hence non-sustainable.

Requirement #2: Explain how globalisation leads to non-inclusive growth.
*Explain why sustained growth that is generated may be **non-inclusive**:*

Free trade because of globalisation increases the rate of change in the structure of an economy due to gains and losses in comparative advantage. As a result, this causes changes in the demand for workers in the affected industries. When countries lose comparative advantage in the production of a particular good, demand for workers in those industries would fall, while demand for workers in expanding industries would increase.

With reference to the figure below, the fall in the demand for labour in sunset industries from Du to Du' causes wage rate for labour to fall from Wu to Wu'. On the other hand, the rise in demand for labour in sunrise industries from Ds to Ds' causes wage rate to rise from Ws to Ws'. This widens the wage differential and increases the income gap. This together with the occupational immobility of labour within the country leads to greater income inequality. The income gap also widens as there will be people who become unemployed because of structural changes, adversely affecting a country's inclusive growth.

Moreover, increasing income inequality between the skilled and unskilled workers within a country is reinforced by the international division of labour. For example, the influx of cheap unskilled labour from neighbouring countries such as India, Thailand and The Philippines have driven down the wages of unskilled workers in Singapore. On the other hand, Singaporeans who are highly skilled can command high wages both domestically and overseas. Highly skilled labour is demanded by MNCs in Singapore and in other countries, resulting in higher wages for highly skilled labour.

As such, due to the widening income gap brought about by structural unemployment, any growth that globalisation brings about through higher export revenue and/or investment will result in the growth being non-inclusive.

Mark Scheme:

Level	Knowledge, Understanding, Application, Analysis	Marks
3	For a good analytical assessment of why globalisation leads to both non-sustainable and non-inclusive growth. Answer is relevant to question and has good use of well-explained theory. There must be clear written explanation supported by a tool of analysis. Good ability at organising ideas or discriminating between relevant and irrelevant material. Answer is well focused on the question.	8-10
2	For a correct but underdeveloped explanation of why globalisation leads to both non-sustainable and non-inclusive growth. Response may not necessarily recognise that sustained growth had been achieved as well.	5-7
1	For an answer that descriptively explains 1 or 2 of the main requirements with limited or no analysis. Ability to describe why globalisation leads to either non-inclusive growth or non-sustainable growth. • A few valid points • Answer mostly irrelevant or inaccurate • Meaning of question not properly grasped • Basic errors of theory • Inadequately explained	1-4

Suggested answers to Part (b):

Introduction
The freer flow of goods and services due to globalisation leads to changing comparative advantage, which can lead to loss of export competitiveness and rising unemployment. Governments would thus need to implement appropriate measures to maintain export competitiveness (both price and non-price), as well as reduce unemployment. One such way is to use tariffs.

Requirement #1: Explain how tariffs can maintain export competitiveness and reduce unemployment.
A tariff is a tax on imports and the use of tariffs can help an economy to maintain export price competitiveness through the **protection of infant industries**. The government might want to protect infant industries in the domestic market. An infant industry is a new industry that the government believes has potential comparative advantage but has yet to realise this potential as it is extremely difficult to establish and compete with the established foreign firms.

How protectionism works in protecting infant industries & its benefits
The government may thus impose protectionist measures such as a tariff. This increases the cost of supplying the goods, hence reducing the world supply curve to Sw + tariff. The price now increases from Pw to P2.

<u>Figure: Effects of a tariff on price and output</u>
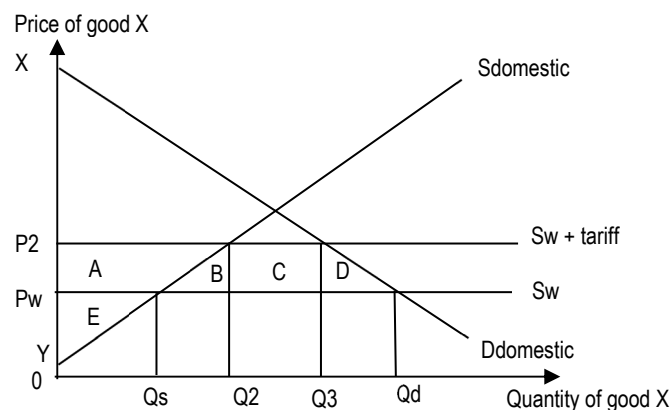
As a result, domestic producers are now incentivised to increase their quantity supplied to Q2. The average cost of production of the firms in the industry thus falls as they gain cost advantages by exploiting internal economies of scale. If the firms in the infant industry are further encouraged by the support to invest in R&D activities such as process innovation, this will further reduce the firms' average cost of production.

All of these further the development of the domestic industry and allows the industry to 'catch up' with the more established foreign firms. When the infant industry 'catches up' with the more established foreign industries, it realises its potential comparative

advantage. It can now produce good X at a lower opportunity cost than another country. In the long run, with protectionist measures, there may be gains in the form of increased employment and income as well as lower prices of these goods. Thus, the lower prices allow for export price competitiveness to be gained or maintained.

At the same time, the use of tariffs can safeguard employment in the domestic economy against unemployment caused by import penetration. A change in comparative advantage may seriously hit an industry, for e.g., cheap imports from developing countries have led to a more rapid decline in low-end manufacturing in US industries which have lost their comparative advantage leading to higher structural unemployment.

As seen above, with the implementation of tariffs, domestic producers are now incentivised to increase quantity supplied to Q2 and in turn the demand for labour increases. Workers can have more time to be retrained for other industries. This thus reduces the extent of structural unemployment.

Protectionist measures thus help to slow down the decline of the affected industry so that resources may be switched to other industries gradually. This will avoid the situation of high rates of unemployment in the economy and the accompanying economic and social costs of such unemployment.

Possible EV:

[E/Criterion: PES of domestic supply] The use of tariffs is more effective in helping export industries to maintain price competitiveness as well as reduce unemployment if domestic supply is more price elastic. **[E/Reasoning]** This is because with the tariff and when PESd>1, the quantity of imports is reduced more significantly, and domestic quantity supplied increases more, from Qs to Qa instead of Qs to Q2. This allows for greater domestic production to take place, hence, allowing for greater internal EOS to be reaped due to the larger scale of production. **[E/Opinion]** As such, tariffs would be effective in helping to maintain export competitiveness and reduce unemployment for industries where PES>1.
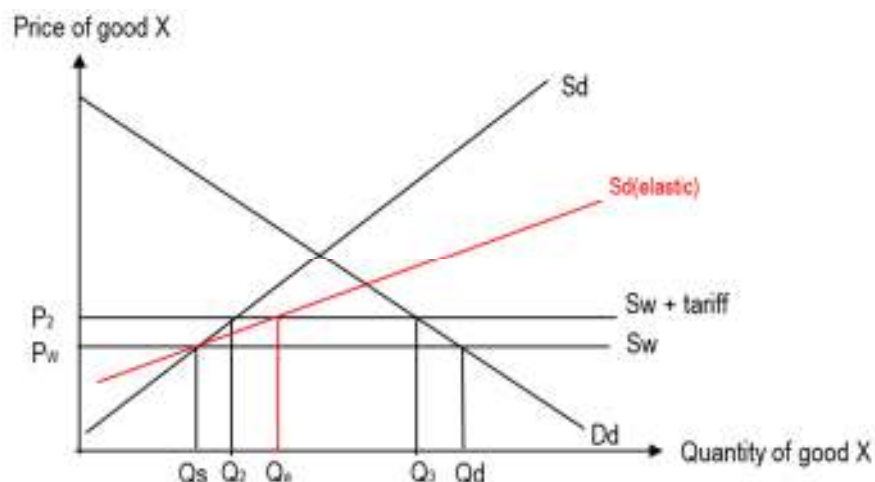
Requirement #2: Explain how another policy can maintain export competitiveness and reduce unemployment.

Explain the use of supply-side policies:

Besides the use of tariffs, governments may also implement supply-side policies to maintain export competitiveness and reduce unemployment. For instance, the government may implement interventionist supply-side policies via providing or subsidising education and training programmes.

Education and training aim at increasing labour mobility and labour productivity. With retraining, **labour productivity increases**, allowing workers to be more employable. Equipped with more relevant skills, this will help to reduce the mismatch of skills and thus, **improve labour mobility** across industries. The higher labour productivity would result in a lower unit cost of production thus raising supply of goods and services. Furthermore, the higher labour productivity would increase the quality of labour, hence increasing LRAS. Productive capacity increases, and assuming AD is sufficiently high, there will be a fall in the country's GPL. Thus, exports become more price competitive, assuming domestic inflation is lower than trading partners' inflation.

At the same time, with more retraining, this leads to a fall in supply of low-skilled manufacturing workers to S_1. At the same time, labour mobility increases, and these workers can move to the sunrise industries (e.g. IT industry), resulting in an increase in supply of workers to S_2. This reduces the problem of structural unemployment.
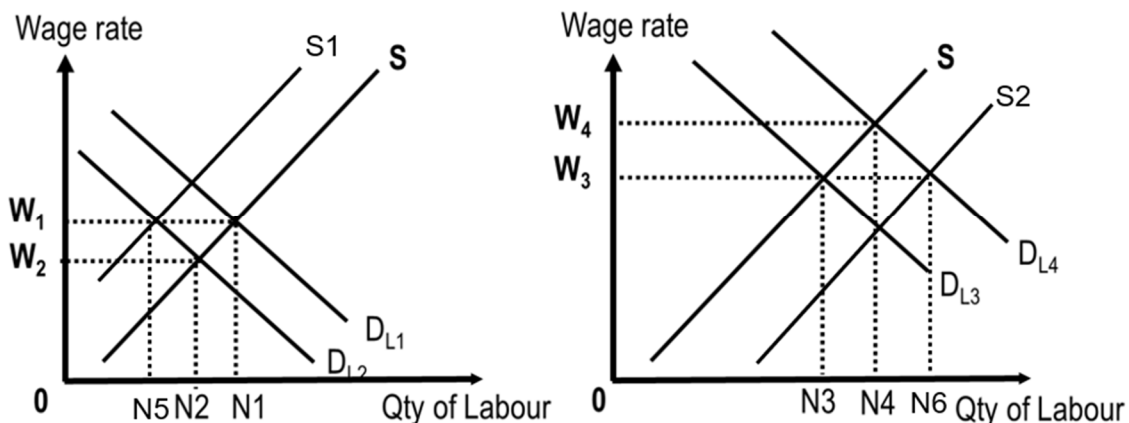
Hence when there is economic restructuring in a country which leads to more and more job listings that require specific skills, structural unemployment will arise. Unemployed workers who are looking for work do not have the skills to be qualified for the available positions. However, education and upgrading of skills for these workers will help to ensure their 'employability' by equipping them with the relevant skills to move between different jobs and filled up these vacancies. As a result, structural unemployment is reduced.

Note: Students could also consider the use of other policies e.g. SS-side policies in the form of subsidies for process R&D (to increase export price competitiveness) or product R&D (to increase export non-price competitiveness).

Possible EV:

[E/Criterion] However, the outcomes of these supply side policies are often uncertain because it depends on the receptivity of the firms and workers towards these schemes. **[E/Reasoning]** Firms might be unwilling to allow their workers to engage in training as they might lose these workers after the training if these workers chose to be employed by other firms. Workers might also not be incentivised by the subsidies to undergo training and if the take-up rate is low, the increase in labour supply for the new growth industries will be minimal and wages in these industries will remain high, thus leading to higher prices of goods and services. **[E/Opinion]** For an ageing population like Singapore, this would be quite likely to happen due to its ageing population which would decrease the likelihood of receptivity by the older workers to participate in training programmes.

Having said that, these SS-side policies also improve the attractiveness of the country to foreign multi-national companies to set up their operations there. The availability of labour with the relevant skills will increase foreign direct investment, further improving export price competitiveness in the long run when investments are targeted at technological changes to further increase productivity levels. This would be especially beneficial for a small and open economy like Singapore, which depends on FDI for growth significantly.

Conclusion

[E/Reasoning, Criterion: Timeframe] In the short run, the government's supply side policies to improve export competitiveness through improving productivity might have limited effectiveness. These measures require time for the mindset of various stakeholders to change. Thus, tariffs might be the best way to improve competitiveness and reduce unemployment in the short run. **[E/Opinion]** This is especially needful if the loss in comparative advantage was very sudden, thus creating severe unemployment.

In the long run, the effects of supply side policies would be more evident if various stakeholders cooperate to utilise the policies implemented for their benefit. In addition, ss-side policies target the root cause of the lack of competitiveness (whether price or non-price) and structural unemployment, would be thus make it a more sustainable policy in the long run as it ensures the problem is more sufficiently addressed.

Mark Scheme:

Level	Knowledge, Understanding, Application, Analysis	Marks
3	For a good analytical assessment of tariffs and one other policy that a government can adopt to maintain export competitiveness and reduce unemployment. Answer is relevant to question and has good use of well-explained theory. There must be clear written explanation supported by a tool of analysis. Good ability at organising ideas or discriminating between relevant and irrelevant material. Answer is well focused on the question.	8-10
2	For a correct but underdeveloped explanation of the two requirements on how tariffs and one more other policy work to maintain export competitiveness and reduce unemployment. Answer is related to question, but theory incompletely explained or has minor errors.	5-7
1	For an answer that descriptively explains 1 or 2 of the main requirements with limited or no analysis. Ability to describe how tariffs or another policy works to maintain export competitiveness and reduce unemployment. • A few valid points • Answer mostly irrelevant or inaccurate • Meaning of question not properly grasped • Basic errors of theory • Inadequately explained	1-4
Evaluation		
E3	A well-explained evaluative judgement about both requirements and an overall summative conclusion leading to a well-explained evaluative judgement about which, in any, is the best outcome (so far as required by the question).	5
E2	A well-explained evaluative judgement about both requirements OR Lower end of E2 (3 marks) which is a well-explained evaluative judgement about one requirement PLUS a learned evaluative statement for the second PLUS a summative conclusion.	3-4
E1	A well-explained evaluative judgement about one requirement OR E1 (1 mark) for a 'learned" evaluative statement for each of the two requirements.	1-2