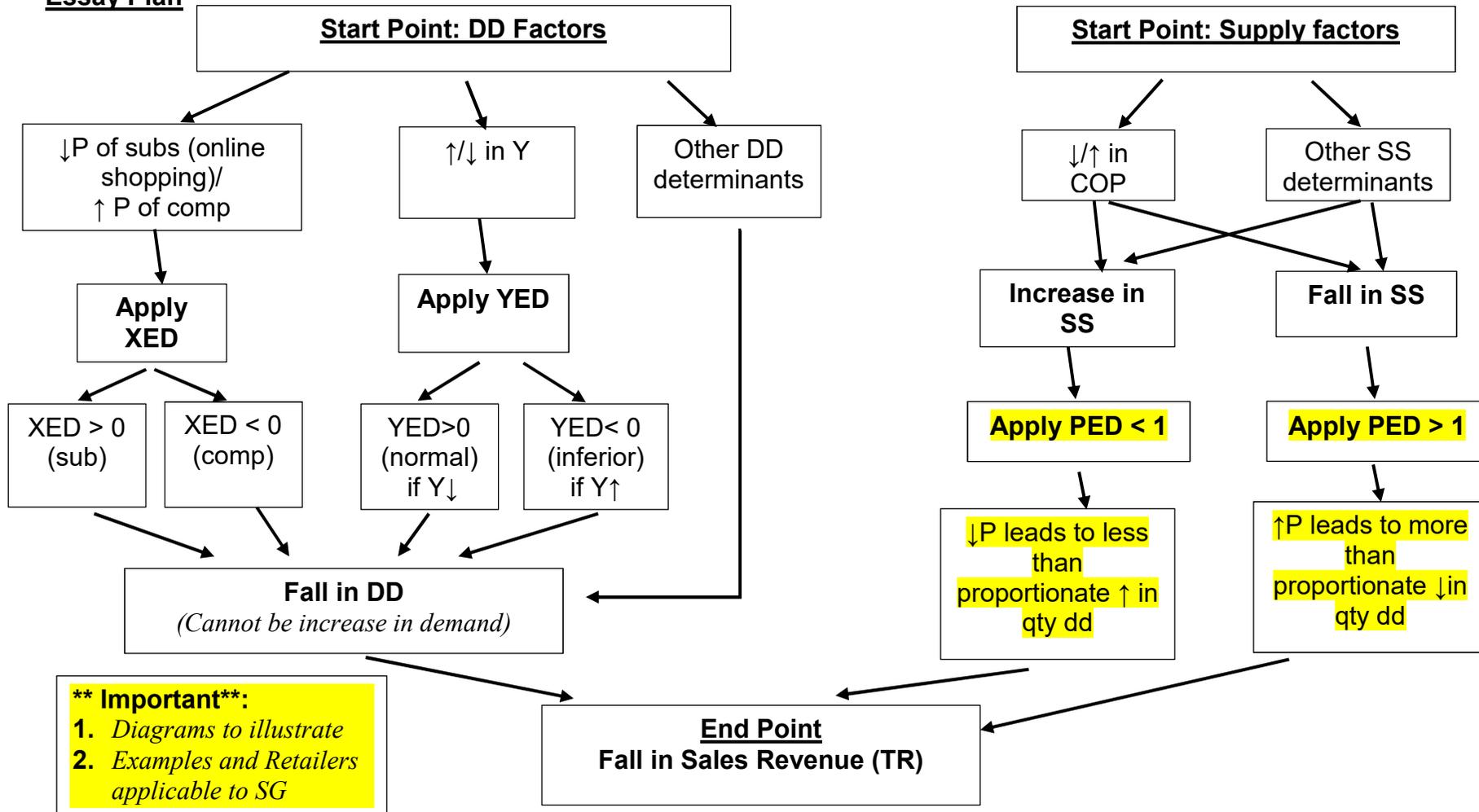


**Question 1**

**Essay Plan**



**\*\* Important\*\*:**  
 1. Diagrams to illustrate  
 2. Examples and Retailers applicable to SG

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## Demand Reasons (For fall in TR: Demand must fall)

- 1. Fall in cost of setting up online business** (government subsidies : Spring Singapore's Capability Development Grant, Increasing prevalence of cheap/free online platforms such as Carousell/Qoo10/Lazada) → COP falls → SS increase → Fall in P of goods sold online (groceries, clothing)

*Application of elasticity concept:*

Substitutes ( $XED > 0$ ) → Fall in P of goods sold online → Consumers switch to purchasing online → DD for goods and services sold in physical stores (groceries, clothing) → Fall in sales revenue of brick and mortar retailers

- 2. Economic slowdown in countries such as EU countries** → fall in income due to recession → fall in purchasing power → less demand for imports (tourist attractions/shopping in Singapore etc)

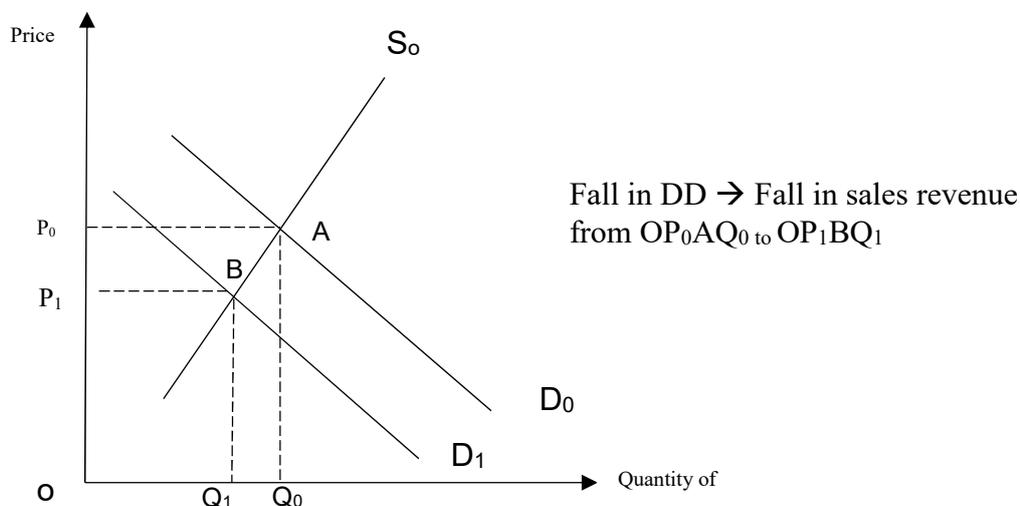
*Application of elasticity concept:*

$YED > 0$  or  $YED > 1$ : fall in demand for normal goods (such as luxury handbags) → fall in total revenue of brick and mortar retailers selling such goods

Note: Possible to argue for economic growth in Singapore (increase in income) and link to fall in demand for inferior goods ( $YED < 0$ )

- 3. Increasing availability of overseas substitutes** (Amazon, Taobao, Rakuten, Entry of Amazon prime in the domestic market) → affects tastes and preferences of consumers → Consumers switch from local brick and mortar retailers (of less perishable goods such as electronics and health supplement) to overseas retailers → Fall in DD → Fall in sales revenue
- 4. Technological changes** → changes in tastes and preferences → Consumers prefer to shop online due to the greater convenience (Apps, fall in data cost) → Switch to purchasing from online → Fall in DD → Fall in sales revenue

*Illustrate with Diagram (to relate to the points above):*



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## Supply Reasons: (For fall in TR: can be increase or fall in supply)

1. **Fall in COP of setting up online business** → brick and mortar retailers switches to online businesses (smaller bakeries moving to pure online presence/ printing companies) → fall in size of industry → fall in SS of brick and mortar bakeries → Increase in P

*Application of elasticity concept:*

PED > 1 (availability of close online substitutes) → consumers can easily switch to purchasing from online bakeries → more than proportionate fall in Qd → Fall in sales revenue

2. **Increase in rent (Reits driving up rent of commercial shop space)** → increase in COP of goods such as luxury handbags → Fall in profits → Fall in SS → P increase

*Application of elasticity concept:*

PED > 1 → ... → more than proportionate fall in Qd → Fall in sales revenue

3. **Increase in wages due to tightening of foreign workers' quota** (govt tightening to encourage firms to switch to labour replacement technology) → Fall in supply of labour → increase in wages → increase in COP → Fall in profits → Fall in SS → P increase

*Application of elasticity concept:*

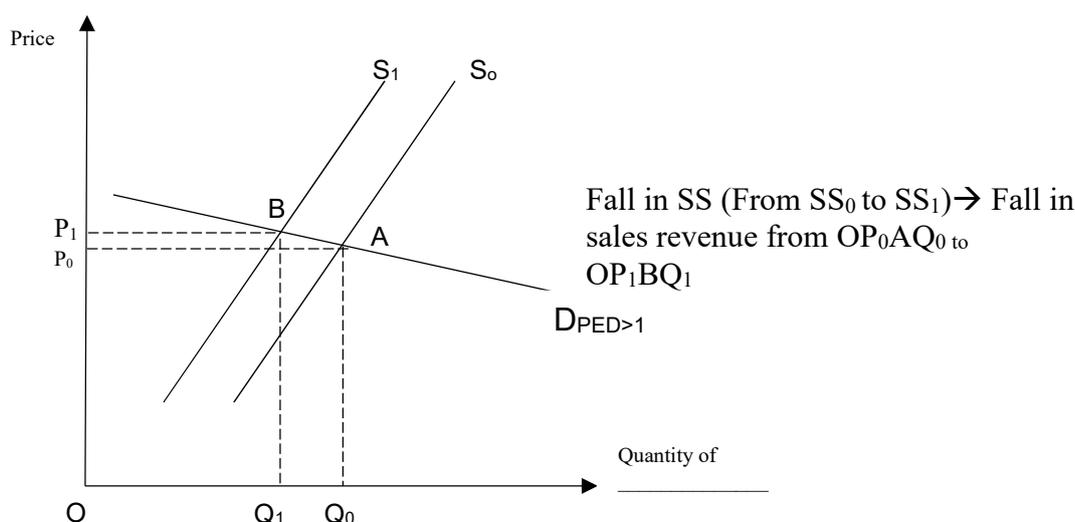
PED > 1 → ... → more than proportionate fall in Qd → Fall in sales revenue

4. (Related to previous point) **Labour replacement technology may not have matured** → increase in productivity < increase in costs of using these technology → increase in COP → ....

*Application of elasticity concept:*

PED > 1 (substitutes/large proportion of income) → ..... → Fall in sales revenue

*Illustrate with Diagram (relate to the points above):*



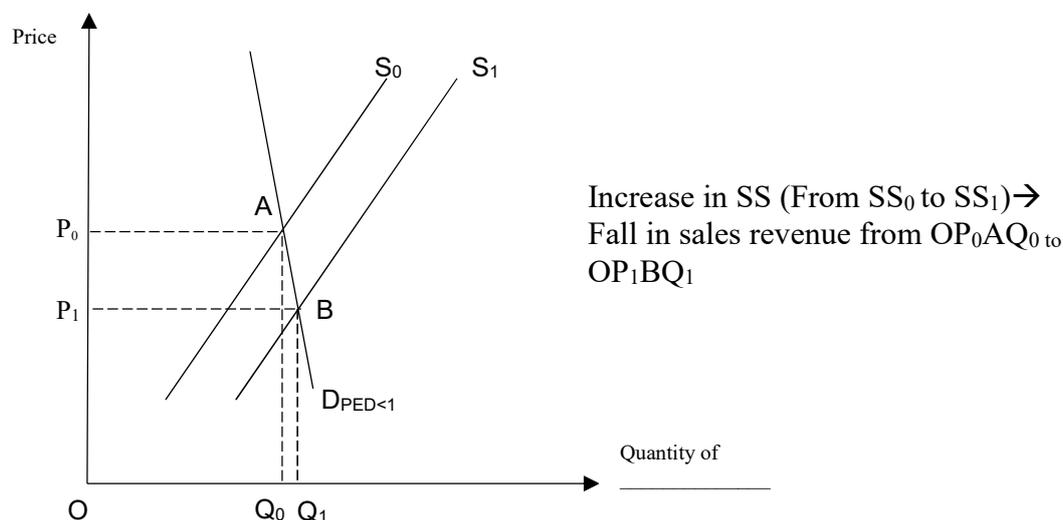
5. **For retailers who managed to implement technology to reduce COP** (supermarkets using automation (self checkout counters) to reduce labour cost) → increase in SS → Fall in P

*Application of elasticity concept*

$PED < 1$  (groceries are necessities with few substitutes)  $\rightarrow$  less than proportionate increase in  $Q_d \rightarrow$  Fall in sales revenue

*EV: Supermarkets selling necessities have also faced competition from online retailers (Redmart, Honestbee, Amazon prime)  $\rightarrow$  Increase number of substitutes  $\rightarrow$   $PED$  may be  $> 1 \rightarrow$  Fall in  $P$  might lead to increase in sale revenue instead*

Illustrate with Diagram (relate to the points above):



### Final Evaluation (Possible points)

- **Difficult to distinguish between brick and mortar vs online retailers.** Many traditional brick and mortar have also moved onto the online retail space (NTUC, Qoo10, Carousell, Lazada). Thus the relationship between them may not only be in terms of competitive demand, but may be in terms of joint/competitive supply. These new relationships could also explain why sales revenue may have fallen
- **Most important reason depends on the exact market.** For certain goods (food & beverage, healthcare), online substitutes are less common/non-existent, thus unlikely to be affected by growth of online shopping. For food and beverage (especially restaurants in tourist areas), fall in sales revenue most likely to be fall in tourist arrivals (fall in  $DD$ ) or proliferation of new entrants (increase in supply)
- **Short run vs Long run:** Depends on whether preference for online shopping is enduring. (For example, a part of the population (esp the elderly) still prefers to physically handle the good before purchase)

Knowledge, Application, Understanding and Analysis		
L3	For a well-developed answer that explains how changes in demand and supply (with the use of at least 2 elasticity concepts) can result in a fall in sales revenue for different retailers (at least a combination of 4 $DD$ and $SS$ factors). Use of $DD/SS$ diagrams to illustrate fall in sales revenue. Good use of examples relevant to Singapore's context	15 – 20
L2	For an underdeveloped answer that explains how changes in demand and supply (with the use of elasticity concepts) can result in a fall in sales revenue for different retailers (at least a combination of 3 $DD$ and $SS$ factors). Use of $DD/SS$	9 - 14

	diagrams to illustrate fall in sales revenue. Limited use of examples relevant to Singapore's context  No diagrams : Max 13m	
L1	For a poor and inaccurate explanation of demand and supply factors that could lead to a fall in sales revenue. Many conceptual errors	1 – 8
Evaluation		
E3	For an answer that arrives at an analytically well-reasoned judgement	4-5
E2	For an answer that makes some attempt at evaluation, but lacks economic rigour  For example: answer may identify the most important without sufficient elaboration	2-3
E1	For an unsupported statement that attempts to address the question.	1

## Question 2

### Suggested answer

#### Introduction

1. Rational decision making uses the marginalist approach to weigh benefits and costs.
2. Marginal benefits of an economic activity are:
  - marginal utility (consumer)
  - marginal revenue (producer)
  - marginal social benefit (government).
3. Marginal costs of an economic activity are:
  - cost of purchasing one more unit of the good (consumer)
  - marginal cost of production (producer)
  - marginal social cost (government)
4. Economic agents do this to achieve their own objectives which are:
  - maximisation of utility (consumer)
  - maximisation of profits (producer)
  - maximisation of social welfare (government)
5. These decisions made may or may not lead to intended consequences of efficient and equitable allocation of resources which are:
  - Efficient allocation of resources refers to the allocation of resources to produce the combination of goods and services most wanted by society (i.e. allocative efficiency)
  - Equity refers to fairness in the distribution of economic welfare usually in terms of equal access to essential goods and services, such as education and healthcare services.

#### Body

P1: Rational decision making by consumers & producers leads to efficient and equitable allocation of resources

##### Para 1

Rational decision making by both consumers and producers leads to efficient allocation of resources

Need to bring in assumptions of a perfectly competitive market.

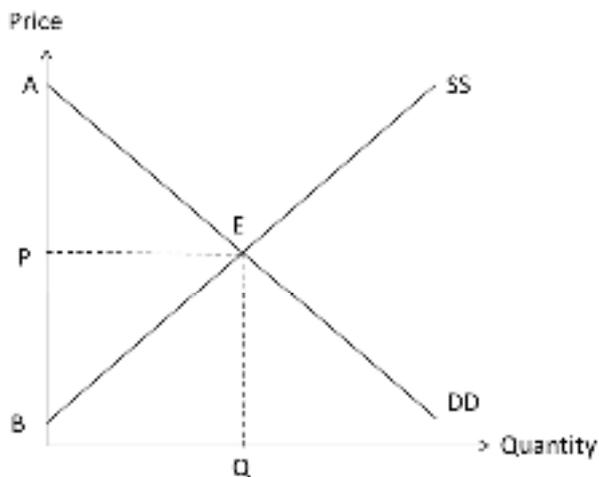
- ⇒ **[Start-point]** Being rational agents, the maximum price consumers are willing to pay is equal to the marginal utility that they derive from consuming an additional unit of the good → the higher the MU, the higher the price they are willing to pay → this signals to producers to produce more
- ⇒ **[Start-point]** Being rational agents, producers would produce a good or service as long as the MR they gain exceeds the MC incurred → the higher the price signals, the higher the MR → producers increase production

P2: Rational decision making by consumers & producers does not lead to efficient and equitable allocation of resources

##### Para 2

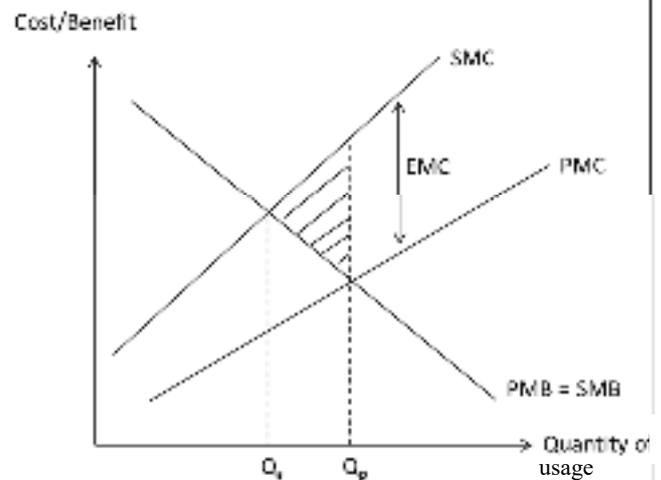
However, rational decision making by consumers can also lead to inefficient allocation of resources

- ⇒ Context: car driving
- ⇒ Private benefits are faster travelling time, greater conveniences etc. Private costs are cost of owning and using the car, interest for car loans etc.
- ⇒ **[Start-point]** Being rational agents, consumers would maximise their utility where  $MPB = MPC$  at  $Q_p$ .
- ⇒ But,  $Q_p$  is not optimal because there are external costs imposed on third parties which the consumer does not take into account of.  
External costs are noise and air pollution to those living near the major



- ⇒ The equilibrium market price (P) and quantity (Q) are determined by the interaction of demand and supply forces. At equilibrium, the quantity demanded exactly equals the quantity supplied. Consumer surplus (APE) and producer surplus (BPE) are also at the maximum.
- ⇒ Should there be an increase in demand, there will be an increase in equilibrium price which helps to shift more resources over and increase production
- ⇒ **[End-point]** Allocative efficiency results

expressways and roads, traffic congestion affecting those taking public buses



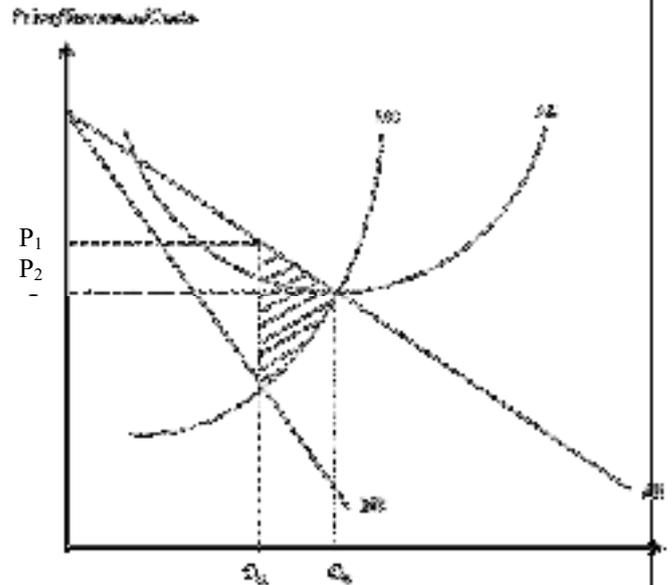
- ⇒  $SMC > SMB$  at  $Q_p \rightarrow$  society values an extra unit of car usage less than what it costs to do so
- ⇒ To maximise welfare for society, consumption should occur where  $SMC = SMB$  at  $Q_s$ .
- ⇒ Rational decision-making by consumers has led to over-driving by the amount  $Q_p - Q_s$ . This leads to a deadweight loss to society's welfare which is represented by the shaded area.
- ⇒ **[End-point]** Allocative inefficiency results

### Para 3

However, rational decision making by producers can also lead to inefficient allocation of resources

- ⇒ Context: Monopoly or oligopoly firm
- ⇒ **[Start-point]** Being rational agents, the firm would produce  $Q_1$  where  $MC = MR$  so as to maximise profits and set prices at  $P_1$ .
- ⇒ But at  $Q_1, P_1 > MC \rightarrow$  the society values additional units of the monopolist's product more than what it costs society to produce the additional unit of the good  $\rightarrow$  the socially optimal level would be according to the output that would have been produced under the perfectly competitive market ( $Q_2$ ). Since  $Q_1 < Q_2$ ,

there is now underproduction of the good and hence an under-allocation of resources towards the production of this good. Society suffers from a deadweight loss, represented by the shaded area.



⇒ **[End-point]** Allocative inefficiency results

Moreover, rational decision making by producers can also lead to inequitable allocation of resources

- ⇒ The large supernormal profits that a monopoly firm earns may worsen existing income inequity as these are made at the expense of consumers, who are paying higher prices.
- ⇒ Furthermore, if the monopoly firm practices price discrimination, even more consumer surplus would be captured away with the entire consumer surplus captured under first degree price discrimination.
- ⇒ The high profits enjoyed by owners and shareholders of the monopoly firm are at the expense of the consumers
- ⇒ **[End-point]** Seen as unfair and inequitable by society

	<p><b>Para 4</b>  However, rational decision making by both consumers and producers leads to inefficient allocation of resources</p> <ul style="list-style-type: none"> <li>⇒ Context: Public good (street lighting)</li> <li>⇒ Public goods are non-rivalrous and non-excludable.</li> <li>⇒ Non-excludability refers to the situation in which consumption or use of a good or service cannot be limited to the consumers who have paid for it.</li> <li>⇒ <b>[Start-point]</b> Being rational agents, the consumers will find it in their interest to conceal their demand and free-ride on others who are willing to pay for the lights → eventually, everyone wants to be a free-rider → no effective demand</li> <li>⇒ Non-rivalry refers to the situation in which consumption or use of a good or service by one consumer does not exclude another consumer from consuming or using it → MC of providing street lighting to additional consumers is zero → <math>P = MC (= 0)</math> for an allocatively efficient outcome → ∴ the producers should not charge a price</li> <li>⇒ <b>[Start-point]</b> Being rational agents, the producers will not want to do so since there is no revenue and profits to be earned → no effective supply</li> <li>⇒ ∴ no market exists for public goods and hence no allocation of resources to the production of them</li> <li>⇒ <b>[End-point]</b> Allocative inefficiency results</li> </ul>
	<p><b>Para 5</b>  However, rational decision making by both consumers and producers leads to inequitable allocation of resources</p> <ul style="list-style-type: none"> <li>⇒ <b>[Start-point]</b> In a free market, middle and higher-income consumers will signal to the producers via higher prices their valuation of high-end consumer durables → producers will allocate more</li> </ul>

resources to producing these goods as doing so will likely bring more revenue

- ⇒ Fewer resources will be allocated to the production of basic and essential goods demanded by the lower-income level consumers because limited by their ability to pay, these consumers can only afford to pay lower prices
- ⇒ **[End-point]** Seen as unfair and inequitable by society

P1: Rational decision making by government leads to efficient and equitable allocation of resources

P2: Rational decision making by government does not lead to efficient and equitable allocation of resources

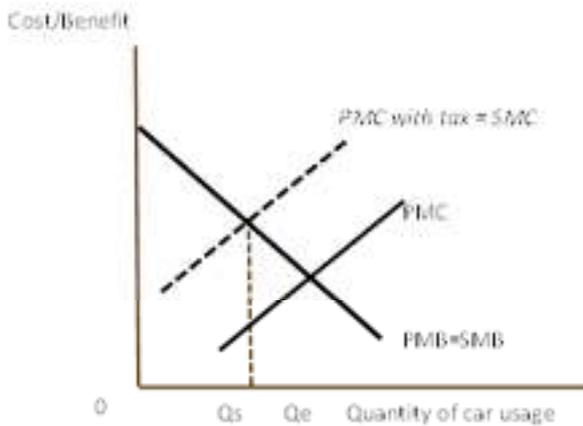
**Para 6**  
Rational decision making by government leads to efficient allocation of resources

- ⇒ Any *one* of the three types of government intervention explained below

Case of negative externalities

- ⇒ **[Start-point]** A rational government would implement a tax equivalent to EMC to induce the consumers to drive cars less often given the higher MC of consumption → the PMC shifts to the left to  $PMC_{with\ tax}$  → the socially efficient level of car usage,  $Q_s$ , will thus be achieved.

→ Example: ERP



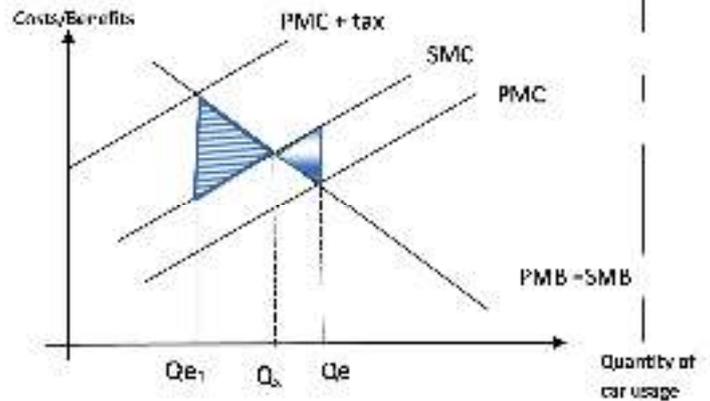
- ⇒ **[End-point]** Allocative efficiency results

**Para 7**  
Rational decision making by government leads to inefficient allocation of resources

- ⇒ Any *one* of the problems explained below

Information problems

- ⇒ **[Start-point]** Due to possibly inaccurate information, the government may have over-calculated the true value of the external cost resulting in the imposition of an excessively high amount of tax → far lower level of consumption than considered optimal → even greater deadweight loss



- ⇒ **[End-point]** Allocative inefficiency worsens

Incompetence

- ⇒ **[Start-point]** Despite its best intention, the government may lack the expertise, experience and technical know-how in

### Case of public goods

- ⇒ **[Start-point]** A rational government would decide to directly provide street lighting because the benefits from increasing consumption of the good outweigh the costs → directly provides the good up to the quantity that it deems desirable for the society,  $Q_s$
- ⇒ **[End-point]** Allocative efficiency results

### Case of market dominance

- ⇒ A rational government may regulate that the monopoly firm set a price equal to its MC of production and compensate the monopoly firm for the resulting losses
- ⇒ **[End-point]** Allocative efficiency results

Rational decision making by government leads to equitable allocation of resources

- ⇒ Any *one* of the four types of government intervention explained below

### Direct provision

- ⇒ **[Start-point]** The government may directly provide essential services such as healthcare services, pre-school education so that regardless of income level, people have access to them
- ⇒ **[End-point]** Equity improves

### Progressive taxation

- ⇒ **[Start-point]** The government may implement a progressive tax system that takes away a higher percentage of the income earned by a high-income earner than the income earned of a lower-income earner → tax revenue collected is then redistributed to lower-income families through transfer payments → narrowing of income gap between the rich and poor
- ⇒ **[End-point]** Equity improves

### Subsidies

- ⇒ **[Start-point]** The government may subsidize certain goods and services (usually necessities like education, healthcare, basic food items and fuel) to

providing essential services → wastage of resources and ends up overspending

- ⇒ **[End-point]** Allocative inefficiency worsens

Rational decision making by government leads to inequitable allocation of resources

### Case of negative externalities

- ⇒ **[Start-point]** When a rational government implements a tax equivalent to EMC on the consumption of cigarettes, the burden of the tax may fall more on the low-income smokers because the tax takes up a larger proportion of their income → tax is regressive in nature
- ⇒ **[End-point]** Seen as unfair and inequitable by society

### Political objectives of government

- ⇒ **[Start-point]** When a rational government is pressured by large research companies to subsidize R & D activities above the appropriate level, this can divert scarce resources from other sectors which are important for other people.
- ⇒ **[End-point]** Seen as unfair and inequitable by society

<p>ensure that lower income households are able to afford them</p> <p>⇒ <b>[End-point]</b> Equity improves</p> <p><u>Price controls</u></p> <p>⇒ <b>[Start-point]</b> The government may also implement minimum wage to redistribute earnings to the low-paid workers by specifying the lowest remuneration that employers are to legally pay their workers.</p> <p>⇒ <b>[End-point]</b> Equity improves</p>	
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### Evaluation

**[Weigh]** Among the economic agents, rational decision making by the government is more likely to lead to intended consequences than rational decision making by consumers and producers. This is due to the following reasons:

- Achieving efficient and equitable allocation of resources is all along one of government’s objectives. The government is therefore more likely to ensure that this will happen. On the other hand, consumers and producers are not concerned about efficiency and equity in the first place – they aim to maximize their own self-interests – utility and profits respectively. As such, if certain assumptions for free markets do not hold, the decisions made by consumers and producers are more likely to run counter to efficiency and equity.
- In decision making, the government considers costs and benefits to the society whereas the consumers and producers consider costs and benefits to themselves. This, in itself, positions decision-making by the government more in alignment with efficient and equitable allocation of resources than decision-making by consumers and producers.

**[Alternative view]** Nevertheless, this could also mean that, if for various reasons, government fails to achieve efficient and equitable allocation of resources, the consequences may be much more severe. This is because the scale in which government operates is many times larger than that of consumers and producers. As such, any adverse impact on efficiency and equity would be amplified.

**[Recommendation]** Hence, in situations where the likelihood of government failure is high, the government should exercise caution in deciding whether to go ahead with the decision or not.

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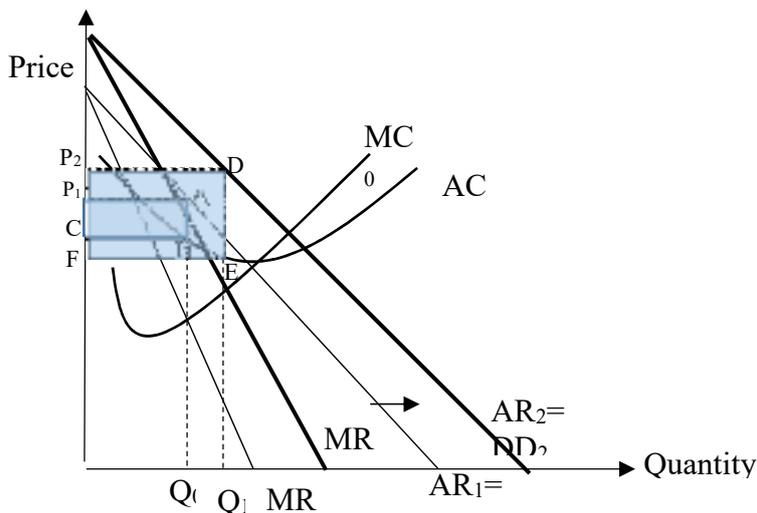
**Mark scheme**

	<b>Knowledge, Application/Understanding and Analysis</b>	
<b>L3</b>	For an answer that uses appropriate analysis to explain the positive <b><u>and</u></b> negative consequences of rational decision making of <b><u>all 3</u></b> economic agents in terms of efficiency <b><u>and</u></b> equity.	15 – 20 (18)
<b>L2</b>	For an answer that uses appropriate analysis to explain of the positive <b><u>and</u></b> negative consequences of rational decision making of <b><u>3 or less</u></b> economic agents in terms of either efficiency <b><u>or</u></b> equity <b><u>or both</u></b> .	9 – 14 (12)
<b>L1</b>	For an answer that gives an under-developed explanation of the positive <b><u>or</u></b> negative consequences of rational decision making of <b><u>2 or less</u></b> economic agents in terms of either efficiency <b><u>or</u></b> equity.	1 – 8 (5)
<b>E3</b>	For an answer that uses appropriate analysis to support an evaluative conclusion about the consequences of rational decision making of different economic agents.	4 – 5
<b>E2</b>	For an answer that makes some attempt at evaluation of the consequences of rational decision making of different economic agents.	2 – 3
<b>E1</b>	For an answer that gives an unsupported evaluative statement about the consequences of rational decision making of different economic agents.	1

**Question 3a**

**Sample Answer**

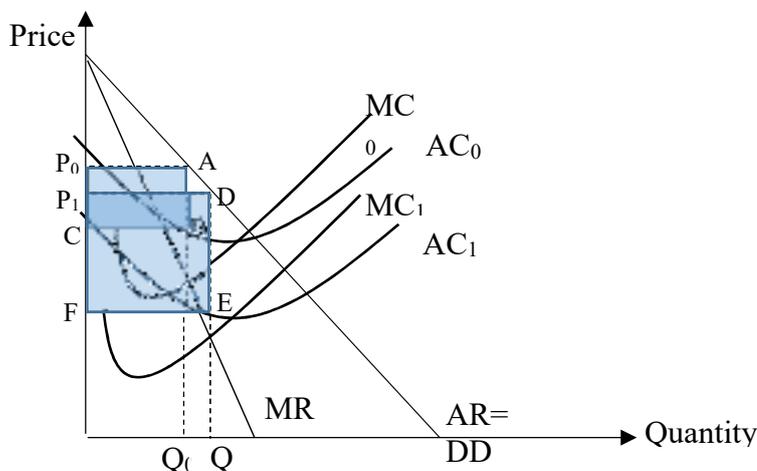
<ul style="list-style-type: none"> <li>- Profits can be expressed as Total Revenue (TR) minus Total Costs (TC).</li> <li>- Innovation could be classified broadly as product and process innovation. The former focuses on the development of new products or improvement on existing products, while the latter focuses on developing more efficient production techniques over time, resulting in a fall in their average and marginal costs of production.</li> </ul>	<p><i>Definition of Innovation</i></p>
<ul style="list-style-type: none"> <li>- Product innovation in the form of developing new products (e.g. Apple innovated iPad to be smaller thinner and faster) → makes the product less substitutable in mobile tablets sphere → DD for the good will become relatively less price elastic → firm can increase prices to increase total revenue, and ceteris paribus, profits.</li> <li>- As seen in Fig below, by making DD for product less price elastic, firm can increase their TR by increasing prices, since Total revenue lost due to the decrease in quantity demanded (Area B) is less than total revenue gained due to the increase in price (Area A).</li> <li>- This is as opposed to having to increase TR by decreasing prices if DD for product is price elastic, where such decreases in prices cannot sustain into the long run. Therefore, firms product innovate to allow them to increase P to increase TR and thus profits, ceteris paribus.</li> </ul>	<p><i>Explain how product innovation helps to increase TR by reducing PED value of the good, allowing firm to increase P to increase profits</i></p>
<ul style="list-style-type: none"> <li>- In addition, the development of such new products may influence consumers' tastes and preferences, → increase in DD for the good.</li> <li>- Ceteris paribus, this would lead to an increase in total revenue and also an increase in supernormal profits from area <math>P_1ABC</math> before, to area <math>P_2DEF</math> after product innovation, <b>as illustrated below.</b></li> </ul>	<p><i>Explain how product innovation helps to increase DD for the good, leading to</i></p>



increased profits using diagrammatic analysis

- Through process innovation in the form of streamlining production lines, for example, a firm like Apple can reduce unit Costs of Production (CoP).
- This leads to Average Costs (AC) faced by the firm to fall, and correspondingly the Marginal Cost (MC) to fall.
- At the new profit-maximising output, where Marginal Revenue (MR) = MC<sub>2</sub>, output has now increased from Q<sub>1</sub> to Q<sub>2</sub>, allowing the firm to potentially earn greater supernormal profits from area P<sub>0</sub>ABC before, to area P<sub>1</sub>DEF after process innovation, **as illustrated below**.

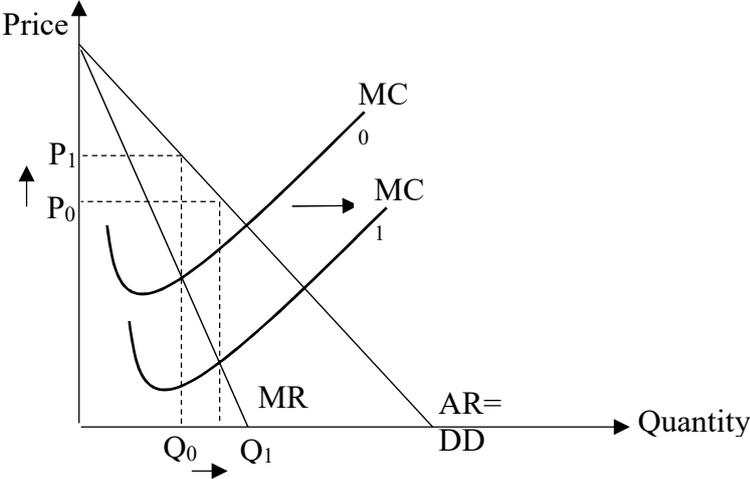
Explain how process innovation helps to increase profit margins/ allow firms to increase SS to increase TR using diagrammatic analysis



Level	Descriptor	Marks
L3	Well – developed explanation on how innovation allows a firm to increase profits. Answer makes use of fully-relevant diagrams to explain the effects of the above strategies on total revenue/total costs/revenue.	8 – 10
L2	Underdeveloped explanation on how innovation allows a firm to increase profits.	5 – 7

	Mostly theoretical explanations, with incomplete/inaccurate/inconsistent links towards TR/TC.	
L1	Response only addresses part of the question OR Whole response does not link to any economic concepts. Pure listing/regurgitation of definitions.	1 – 4

**Question 3b**

<p>Contestable markets are those that are served by <u>one or few firms</u>, and are kept operating at competitive price and output levels due to the <u>threat of potential competition/ potential entry of new firms</u>. To engage in innovation, firms must first have incentive and ability to engage in innovation. Contestability exists due to ease of entry and exit, no sunk costs and access to the same levels of technology.</p>	<p><i>Introduction</i></p>
<p>A firm's decision to innovate might be dependent on the contestability of the market, especially in the case of dominant firms like monopolies. For example, should the degree of contestability of the market be low, a monopoly would probably have <u>little incentive</u> to innovate as they are the sole producer of the good, and regardless of the costs of production or the quality of their product, demand for the good is likely to be still present since there is no substitute available in the market, nor is there a threat of any substitutes that will potentially be developed. This is in spite of them having the <u>ability</u> to innovate, due to the high barriers to entry protecting any supernormal profit that they might have earned, into the long run. Therefore, the firm is likely to produce at the profit-maximising output where <math>MR=MC</math> (at <math>Q_0</math>) and charge at <math>P_0</math> as seen in the figure below.</p> 	<p><i>Perspective 1</i></p> <p><u>Sub-paragraph 1:</u> <i>Explain the ability and incentive of a dominant firm to innovate BEFORE contestability</i></p>
<p>In face of the threat of competition however, the monopolist may therefore be motivated to operate more efficiently and closer to the competitive level so that potential entrants will be deterred from entering the industry. In this case, the firm may be more motivated/incensitised to engage in process innovation, such as streamlining their operations so as to reduce their unit cost of production. Such a reduction would diagrammatically lead to a fall in the MC curve from <math>MC_0</math> to <math>MC_1</math>, as seen in the figure above, so that at the profit-maximising output, the price can be lower at <math>P_1</math> and quantity can be higher at <math>Q_1</math>.</p>	<p><i>Perspective 2</i></p> <p><u>Sub-paragraph 2:</u> <i>Explain the ability and incentive of a dominant</i></p>

<p>In addition, the firm may also engage in product innovation such as improving their product or service delivery, such that it would be less replicable by potential entrants. This would therefore help in</p>	<p><i>firm to innovate AFTER contestability</i></p>
<p>However, a firm's decision to innovate may not necessarily be most dependent on the contestability of the market – even without the market being contestable, firms may still be incentivised to innovate as long as the potential profits reaped outweigh the cost of innovation. For example, if a monopoly chooses to product innovate so as to make its product even more unique to reduce its PED value, it would then be able to increase prices even more in order to increase total revenue, and ceteris paribus, its profits. The degree of contestability does not necessarily affect a firm's decision to innovate.</p>	<p><i>P2: Potential profits is a factor affecting firm's decision to innovate.</i></p>
<p>Furthermore, firms' decisions to innovate may also be dependent on other factors like alternative objectives as well. This could be seen in oligopostic market structures, where may be incentivised to innovate so as to increase market share. This can be seen from firms like Apple, which continually come up with new revisions of its iPhone by adding incremental features so as to reduce the substitutability of its smartphones, and in so doing hopefully increase the market share in the smartphone market.</p>	<p><i>P3: Alternative objectives could be a factor affecting firm's decision to innovate.</i></p>
<p>A firm's decision to innovate may also be dependent on whether the firm is even affected by contestability. Markets that tend to already be competitive such as perfect competition and monopolistic competition do not even face the threat of contestability. Therefore, these firms do not depend on contestability to decide whether to innovate.</p>	<p><i>P4: Firm's decision to innovate may be independent of contestability if it does not even apply to them.</i></p>
<p>Consequently, it also depends on whether the firm has <u>the incentive and ability</u> to innovate. This is in turn dependent on the market structure that the firm operates in. For example, if the firm in question operates in a monopolistic competitive market structure, such as neighbourhood confectionary shops, then they probably would have no <u>incentive</u> to innovate. This is due to the low barriers to entry, where potential new entrants can gain easy access to information about the innovations in production processes or innovative tastes of breads, allowing new entrants to easily replicate them and thus compete away the potential profits gained by the initial firm who innovated. In the long run, the firm would therefore make normal profits, thereby rendering them unlikely to have the <u>ability</u> to engage in innovation in the first place, since innovation requires significant financial resources to see to its fruition. Therefore, even if a firm may or may not be subjected to contestability, it has to consider whether they have the ability and incentive to innovate before even considering the decision to innovate.</p>	<p><i>P5: Incentive and ability to innovate could be a factor affecting firm's decision to innovate</i></p>
<p>[W] In conclusion, a firm's decision to innovate probably is definitely not most dependent on the degree of contestability it faces – rather, it is likely</p>	

that it primarily depends on the ability to innovate in the first place. This is because for firms which do not have the ability to innovate in the first place, innovation will not even be a potential decision to consider. Likewise, even if monopolies and oligopolies are faced with the threat of increased competition, they probably would still not innovate if they are making sub-normal or normal profits.

[S] Also, whether or not a firm engages in innovation, regardless of contestability, may also depend on whether government provides sufficient subsidies/rebates to help firms innovate (to maybe develop potential new areas of comparative advantage). If government provides substantial incentives for firms, it is likely that firms even in the monopolistic competitive structure might be incentivised to innovate as long as the marginal benefit of innovation is more than or equals to the marginal cost of innovation.

Level	Descriptor	Marks
L3	A <u>balanced and well-developed answer</u> on whether the firm's decision to innovate is dependent on contestability, with consistent use of examples where appropriate.	8 – 10
L2	An <u>under-developed, balanced answer</u> on whether the firm's decision to innovate is dependent on contestability, with inconsistent use of examples.	5 – 7
L1	A one-sided answer which merely <u>lists and describes</u> whether the firm's decision to innovate is dependent on contestability Many/Serious conceptual errors; mainly irrelevant points that does not address the question requirement.	1 – 4
<b>Evaluation</b>		
E3	For an answer that arrives at an analytically well-reasoned judgement about whether a firm's decision to innovate is most dependent on the contestability of the market. Might also question any unstated assumptions to arrive at this well-reasoned judgement.	4 – 5
E2	For an answer that makes some attempt at evaluation, but does not explain adequately their judgement or base it in analysis, about their judgement on whether a firm's decision to innovate is most dependent on the contestability of the market.	2 – 3
E1	For an answer that gives an <u>unexplained, unsupported</u> evaluative statement on whether a firm's decision to innovate is most dependent on the contestability of the market.	1



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## **Question 4a**

### **Suggested Answer**

- Deflation refers to a sustained decrease in the general price level of the economy.
- Deflation can be due to a persistent fall in AD or due to a persistent increase in SRAS.
- The persistent fall in AD or persistent rise in SRAS can be due to both domestic causes and as well as external causes.

### **Domestic causes of the persistent decrease in AD**

- Government policies:
  - o Continual tightening of the monetary policy that results in a higher interest rate, cost of borrowing rises and reduces profitability of firms. This leads to a decrease in investment,
  - o Rise in taxes such as income tax or corporate tax will decrease disposable income and after-tax profits of firms respectively. Consumption and investment will decrease.
  - o Persistent overvaluation of exchange rate to maintain the value of currency- resulting in exports being relatively more expensive and this can result in a fall in export revenue.
- Debt deleveraging - After a credit bubble, people may be seeking to pay off debts and have to reduce spending, resulting in a fall in consumption. For example, in the on-going fiscal debt saga experienced by the Greek economy, the Greek authorities are facing immense pressures from the European Union to cut spending and raise taxes and show that they are able to service their debt obligations.

→ Decrease in AD and therefore a decrease in the general price level of the economy, resulting in deflation.

### **External causes of the persistent decrease in AD**

- Worldwide recession
  - o Fall in household incomes globally. This reduces households' disposable incomes and their purchasing power. As a result, the demand for Singapore's exports will also decrease and lead to a fall in export revenue (*ceteris paribus*). AD will fall significantly as export revenue takes up a large component of Singapore's AD.
  - o Pessimistic outlook, firm expects poor demand and consumer are uncertain about future outlook, rather save than consume → Fall in I and C
  - o Deflation usually occurs during a deep, prolonged, severe recession, when there is sustained fall in demand

→ Decrease in AD and therefore a decrease in the general price level of the economy, resulting in deflation

### **Domestic causes of the persistent increase in SRAS**

- Rapid growth in technology. For example, the use of automation (such as 3D printing, prefabrication of construction material) has reduced cost of production in many industries.

- Government policies. For example, the SkillsFuture initiative by SG govt aims to make it simple for workers to gain skills and continually sharpen them through their careers. To do so, the Government will invest over \$1 billion in total from 2016 to 2020 to fund the SkillsFuture credits that can be used for work skills-related training. Singapore Workforce Development Agency, will also pay up to 90% of skills upgrading course fees. Such programmes will improve the level of skill mastery in Singapore and improve labour productivity.

→ Reduces cost of production, and increases SRAS, resulting in a fall in GPL and deflation.

**External causes of the persistent increase in SRAS**

- Persistent fall in the costs of raw materials such as crude oil and raw materials/food. Oil prices have fallen from a high of \$120 in 2012 to as low as \$35 in 2017. Fall in cost of production due to lower cost of oil-based inputs, transport and energy brought by lower oil prices

→ Reduces cost of production, and increases SRAS, resulting in a fall in GPL and deflation.

<b>Knowledge, Application, Understanding and Analysis</b>		
<b>L3</b>	For a developed answer that shows a comprehensive understanding of the different causes of deflation. Explain the domestic and external factors of deflation with good use of AD-AS framework. Good use of examples	8 – 10 (9)
<b>L2</b>	For an underdeveloped answer that shows some understanding of the different causes of deflation. Explain the domestic and external factors of deflation. Some use of AD-AS framework	5 – 7 (6)
<b>L1</b>	For an answer that is mostly descriptive, with some inaccuracies. Attempted to describe some factors (either domestic or external causes) of deflation.	1 – 4 (3)

**Question 4b**

<b>Discuss the extent to which deflation affects the balance of payments position in an economy.</b>		<b>[15]</b>
<b><u>Introduction</u></b>	Introduction	
<ul style="list-style-type: none"> <li>- Balance of payments account (BOP) refers to its record of economic transactions between its residents (households, firms and government) and foreigners over a period of time usually a year.</li> <li>- Two main components: current account balance + capital and financial account balance.</li> <li>- Deflation refers to a fall in the general price level of the economy</li> </ul>		
<b><u>Perspective 1: Deflation improves the price competitiveness of X → improves BOP.</u></b>		
Deflation → Fall in price of X (gain of export price competitiveness) <ul style="list-style-type: none"> <li>→ Assume <math>PED_x &gt; 1</math> → more than proportionate increase in quantity demanded for Japanese's exports thus a rise in export revenue.</li> <li>→ Japanese consumers will switch from more expensive imported goods to consume more domestic products → decrease in demand for import → import expenditure decreases</li> <li>→ Current account improves</li> </ul>	Deflation improves price competitiveness of X and improves BOP position of an economy	

<p>→ Ceteris paribus, BOP position improve.</p>	
<p><b><u>Perspective 1: Deflation worsen investors' confidence and worsen capital account</u></b></p> <p>Deflation, → persistent fall in prices may affect the investors and consumer confidence as consumer delays their purchases,</p> <ul style="list-style-type: none"> <li>→ Fall in FDI due to falling demand for goods and services (falling profits)</li> <li>→ Capital account worsens</li> <li>→ BOP position worsens, ceteris paribus</li> </ul>	<p>Deflation might result in consumer delaying their purchases and worsen FDI and capital account.</p>
<p><b><u>Perspective 2: Other factor such as global downturn resulting in poor investor and consumer confidence may also affect BOP</u></b></p> <p>However, besides deflation, there are other factors that may affect BOP.</p> <ul style="list-style-type: none"> <li>→ Global downturn worsen investors' and consumers' confidence and can affect BOP</li> <li>→ For example, Singapore was the first East Asian country to go into a recession in 2009 due to the global slowdown arising from the US Financial Crisis.</li> <li>→ There was a significant decrease in global demand, resulting in a fall in net exports which hit Singapore especially hard, in view of the small domestic demand and heavy dependence on exports for growth. Thus, in this case, when deflation is caused by the falling income of the world economies, BOP position is likely to worsen</li> </ul>	<p>POV2: Other factors such as Global downturn affects the BOP balance</p>
<p><b><u>Perspective 2: Other factors such as inflation may also affect BOP</u></b></p> <p>However, there are other factors such as high inflation that may affect BOP.</p> <ul style="list-style-type: none"> <li>→ A higher inflation rate will also mean that the price of Singapore's exports will fall and become less affordable to foreign consumers.</li> <li>→ For example, the Singapore government has tightened the foreign labour quota in recent years. This has led to upward pressure on wages and has increased the costs of production of domestic producers, which translates to higher prices of final goods and services.</li> <li>→ This results in a fall in Singapore's export price competitiveness. As the demand for her exports is price elastic (due to the large number of substitutes available for Singapore's exports), a loss of price competitiveness will result in a fall in export revenue. An increase in the rate of inflation in Singapore will also affect its import expenditure.</li> <li>→ As domestic prices increase, Singaporean consumers will switch from domestic produced goods to imported goods and this is especially pertinent to Singapore since a significant amount of domestic produced goods in Singapore has close imported substitutes. The fall in export revenue and increase in import expenditure results in a fall in net exports, therefore worsening the current account balance.</li> <li>→ BOP position worsens, ceteris paribus.</li> </ul>	<p>POV2: Other factors such as Global downturn affects</p>

<p><b><u>Perspective 2: Other factors such as government policies may also affect BOP</u></b></p> <p><b><u>Government Policies - Depreciation of Currency</u></b></p> <ul style="list-style-type: none"> <li>→ Besides, deflation, there are other factors that affects the balance of payment position of a country. A monetary authority of an economy could manage the <b>exchange rate</b> of the country to affect its balance of payment position.</li> <li>→ The extent of the impact of a change in exchange rate depends on the <b>price elasticity of demand of imports and exports</b>. Price elasticity of demand (<math>E_d</math>) measures the degree of responsiveness of quantity demanded of a good to a change in its price, ceteris paribus. It is calculated as percentage change in quantity demanded divided by percentage change in price.</li> <li>→ Should a government decide to bring about a fall in the external value of the currency, through depreciation, it will cause a fall in the foreign price of exports and a rise in the domestic price of imports. Depreciation, which reduces the foreign price of exports, will result in a more than proportionate increase in the quantity demanded of exports. Export revenue will increase. On the other hand, devaluation will raise the domestic price of imports; if the demand for imports is price elastic, it will lead to a more than proportionate decrease in the quantity demanded of imports. Import expenditure will fall.</li> <li>→ Hence if both demand for exports and imports are price elastic, depreciation has effectively help to improve the balance of payments deficit.</li> </ul>	<p>POV2: Other factors such as depreciation and PED affects the balance of payment</p>
<p><b><u>Perspective 2: Other factors such as the provision of infrastructure to attract FDI may also affect BOP</u></b></p> <p><b><u>Government Policies - SS side policies</u></b></p> <ul style="list-style-type: none"> <li>→ <b>Government fiscal policy</b> and expenditure on new growth sectors can also help to attract long term capital and hence affect the capital account and hence BOP positively.</li> <li>→ In recent years, the Singapore government has supported the development of the bio-medical science industry as a new export industry. Through joint-ventures with the private sector, and generous grants, the government has for example, built the Biopolis, a complex to house research and development companies in the bio-science with the hope that Singapore would be exporting new drugs/solutions</li> </ul>	<p>POV2: Other factors such as good infrastructure that attracts FDI can affect BOP position positively</p>

<p>to the rest of the world. As a result, research and development in these areas can result in lower prices and better quality products, leading to improvement in export competitiveness (both price and non-price competitiveness), hence managing Singapore's BOP.</p> <p>→ The Biopolis, with its advanced infrastructure, has attracted seven of the top ten pharmaceutical companies in the world, such as Pfizer and GlaxoSmithKline to have units in Singapore to take advantage of the lower opportunity cost in production of pharmaceutical products. This has help Singapore to attract long term capital, improving the LTK account and hence improving BOP position, ceteris paribus.</p>	
<p><b><u>Perspective 2: Other factors such as the recognition of the benefit of free trade may also affect BOP</u></b></p> <p><b><u>Government Policies - Globalisation and recognition of the benefit of free trade by government affect the BOP of economy</u></b></p> <p>→ With the trends towards globalisation and with it driven by the <b>greater awareness of governments</b> that enabling the free movement of goods and services, investment capital and labour, across national borders. This <b>realization of the benefits of trade</b> according to the principle of comparative advantage has led many governments to seek trade opportunities and hence signed more FTAs that helped affect the balance of payment position.</p> <p>→ Thus the recognition of the benefit of free trade by governments have affects the BOP position.</p> <p>→ For e.g. Singapore has concluded multilateral FTAs with many countries and also signed the Trans-Pacific Partnership trade agreement. All of these trade agreements will help to lower trade barriers and free our exports from tariffs, maintaining its price competitiveness. In addition, the reduction in trade barrier makes the economy more open to competition, giving firms incentive to engage in R&amp;D to improve product quality or improve technique of production to lower unit cost of production, increasing export price competitiveness.</p> <p>→ This will help to increase exports revenue and national income, as analysed earlier. As embedded in the agreements is also a clause to ensure protection of intellectual property rights, this will also attract investments, improving competitiveness of Singapore as an investment destination. Thus, the degree of FTA affects the balance of payment position.</p>	<p>POV2: Other factors such as realising the benefit of free trade and signing of more FTAs agreement can help to improve BOP position</p>
<p><b>Evaluation:</b></p> <p>→ Deflation affects the balance of payment position but it is not the most significant factor. The most significant factor that affects balance of payment position in Singapore is government recognition of the</p>	<p>Evaluation: Situation: Most significance factor that affects the BOP position in</p>

<p>benefit of free trade and hence its intervention to create the comparative advantage of our country.</p> <p>→ Singapore government has created comparative advantage through its policies and hence help to improve our balance of payment position. For example, Singapore does not start off with having a comparative advantage in pharmaceutical and petrochemical industries. However, through incentives and provision of infrastructure, the government spearheaded the development of these industries. The development of Jurong Island serves as a catalyst for the petrochemical industry, drawing investors from other countries.</p> <p>→ Another example is the Biopolis, a biomedical science research and development (R&amp;D) hub. Biopolis area is the largest infrastructural project initiated by the Singapore government; this place is dedicated to biomedical R&amp;D activities and has an environment that fosters a collaborative culture among the private and public research community. Seven of the top ten pharmaceutical companies in the world, such as Pfizer and GlaxoSmithKline have units in Singapore. This explains why one of Singapore's top exports is pharmaceutical products. This has led to the persistent balance of payment surplus position in Singapore and has contributed to the 270 billion accumulated foreign reserves currently.</p>	<p>Singapore is the SG government active intervention to create the CA in Singapore through the provision of infrastructure to attract LTK.</p>
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<b>Knowledge, Application, Understanding and Analysis</b>		
<b>L3</b>	For a comprehensive and detailed answer that provides a balanced discussion on how deflation and other factors affect the balance of payments position in an economy.	8 – 10 (9)
<b>L2</b>	For an answer that provides a balanced but undeveloped discussion on how deflation and other factors affect the balance of payments position in an economy	5 – 7 (6)
<b>L1</b>	For an answer that is mostly descriptive, with some inaccuracies and is not in context.	1 – 4 (3)
<b>Allow up to 4 additional marks for Evaluation</b>		
<b>E3</b>	For an answer that arrives at an analytically well-reasoned judgement on the extent to which deflation affects the balance of payments position in an economy.	4 – 5
<b>E2</b>	For a judgement based on economic analysis and makes some attempt at a judgment on the extent to which deflation affects the balance of payments position in an economy.	2 – 3
<b>E1</b>	For an unexplained judgement, or one that is not supported by economic analysis	1

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## Question 5

### **P1: EFFECTIVENESS OF POLICIES (How it works, Advantages)**

- **Exchange rate policy**

**H:** Modest and gradual **appreciation** of S\$ effective in achieving **low inflation**. Alleviates imported cost push inflation in SG as domestic price of imports will be lower, lowering cost of imported raw materials.

**H:** May also adopt **neutral** policy stance, i.e. zero appreciation (or in effect, a depreciation) to help achieve **growth and reduce unemployment** during times of recession. Helps to increase competitiveness of Singapore's exports and increase AD, thus RNY. Given that MLC is like to hold as PED<sub>x</sub> is greater than 1 due to availability of many close substitutes, the BOT and thus **BOP** will also **improve**, ceteris paribus.

**A:** Since exchange rate policy works through controlling external rather than domestic demand, it is rather effective (and **more effective than fiscal policy**) as **external demand accounts for about 2/3 of total demand in Singapore** whereas consumption and investment expenditure do not contribute as much.

**A:** Since Singapore is a small economy that lacks natural resources and is **heavily reliant on imports of raw materials**, the **impact on reducing imported inflation** will be **significant**.

- **Fiscal policy**

**H:** Fiscal policy has been used by Singapore to **counter adverse external shocks** in order to ride out the crises. For example, in the aftermath of the Asian Financial crisis (1998), the bursting of the tech-bubble (2001) and SARS (2003), the Singapore government relied on fiscal measures, including tax credits, transfer payments and various rebates on housing and utilities, especially for the vulnerable low-income groups, to help cushion the impact of the shock. These helped to reduce the fall in AD and thus RNY, helping to **stimulate growth, reduce unemployment** and also ensured that **inequity would not worsen**.

**H:** Apart from the **discretionary** component that largely takes place on the expenditure side, Singapore's fiscal policy also consists of an **automatic stabiliser** component. This largely takes place on the revenue side, particularly through the **progressive income tax system**. It helps to reduce the magnitude of the economy's cyclical fluctuations by reducing the rate of economic expansion (and thus price increase), **keeping inflation in check** or **reducing the rate of economic decline (and unemployment)**, helping the economy to recover.

**H:** The progressive tax system also helps to achieve **inclusive growth** as higher income earners pay higher marginal tax rates than lower income earners. The tax revenue which is collected can be redistributed as subsidies to make healthcare, education and housing affordable to lower income family, thereby **improving equity**. In addition, the Singapore government invests heavily in human capital, for example, through Skills Future that helps workers learn new skills and raises the average quality of the labour force. This creates productive employment opportunities and hence **inclusive growth** when more secure jobs.

**A:** It should be noted, however, that fiscal policy in Singapore is directed primarily at **promoting sustained (actual and potential) growth** rather than cyclical adjustment or distributing income. It does so by having a **strong supply-side orientation**, for example by channelling **more funds into productive infrastructure**. This approach has enhanced the **productive capacity** of the economy, helping Singapore to achieve **sustained growth**.

**A:** The combination of **competitive tax policies and prudent expenditure programmes** has also allowed Singapore to **avoid government borrowing and deficit spending** that have led to inflation and

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a heavy burden of national debt in many other countries. It has allowed Singapore to remain an **attractive place for investment and talents** which help to increase our LRAS and AD that promotes **sustained growth**.

**A:** **Government spending on R&D** has resulted too in **more sustainable use of natural resources** in Singapore (such as the increasing use of renewable solar energy), as well as less negative externalities (such as air and land pollution) through newer and cleaner production processes. Thus fiscal policy in Singapore, via its supply side effects, helps to achieve **sustainable growth**.

- **Supply-side policy**

**H:** Singapore's supply-side policies are multi-dimensional that aim to improve quantity, quality and mobility of factors of production; increase efficiency and remove barriers to competition and trade in product markets as well as give incentives and encourage enterprise. Helps to achieve **potential growth** and thus **sustained growth** as well as **favourable BOP**. Can also help to **reduce structural unN, inflation and income inequity**.

**H:** One example is tax incentives/liberalisation and deregulation that are used to encourage foreign direct investment and encourage R&D. For example, Singapore has one of the world's lowest corporate income tax rates and also has a National Productivity Fund to provide grants to support both industry-wide and enterprise-level productivity initiatives. The increase in FDI leads to increase in AD and multiplied increase in RNY, contributing to actual growth. In addition, it increases the productive capacity of the economy, increasing LRAS and boosting potential growth. Similarly, the productivity initiatives help to lower unit cost of production for firms, increasing SRAS and also adds to the productive capacity, increasing LRAS, achieving **sustained growth with little inflation**.

*Can provide other examples of supply-side policies and explain how they help Singapore to achieve its macroeconomic objectives.*

- **Trade policy**

**H:** Singapore is generally a free port and an open economy, more than 99% of all imports enter the country duty-free. Singapore continues to pursue trade liberalisation through greater economic co-operation and signing free trade agreements in order to maximise the benefits that can be gained from globalisation and trade. Signing FTAs mean Singapore-based exporters and investors stand to enjoy a myriad of benefits like tariff concessions, preferential access to certain sectors, faster entry into markets and Intellectual Property (IP) protection. FTAs set a framework for our businesses to grow and expand globally, which in turn generate more employment opportunities. These help to achieve **sustained growth, low unemployment and a favourable BOP**.

**A:** As Singapore has a small domestic market, the access to foreign markets can lead to a **significant increase in the level of income, employment and BOP position** compared to policies that stimulate domestic demand. There can also be a transfer of technology and expertise together with the inflow of foreign capital that leads to **potential growth**.

## **P2: LIMITATIONS OF POLICIES (L)**

- **Exchange rate policy**

### **Conflict between low inflation and favourable BOP**

When the government adopts an appreciating exchange-rate centred monetary policy to combat imported inflation, it could face a trade-off between inflation and the Balance of Payments (BOP) position.

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The domestic price of final imports will be lower and the cost of production will also be reduced since imported raw materials are now cheaper in domestic currency. This will help lower the general price level and reduce imported cost-push inflation.

With an appreciation, foreign price of exports increase, domestic price of imports fall. Assuming  $PED_x > 1$  and  $PED_m > 1$ , a rise in foreign price of exports will lead to a more than proportionate decrease in quantity demanded in exports, and a decrease in domestic price of imports will lead to a more than proportionate increase in quantity demanded of imports. This leads to a decrease in exports revenue and an increase in import expenditure. Hence net exports ( $X-M$ ) decreases, leading to a worsening CA, and thus BOP position.

Furthermore, appreciation of S\$ may **hurt competitiveness** of Singapore's export of **services** as they do not benefit from lower imported input prices as much as manufactured goods and the service sector contributes to about 2/3 of Singapore's national income.

### **Small multiplier constraints scope of demand management**

As the value of the **multiplier** in Singapore is relatively **low** due to its high marginal propensity to import and high marginal propensity to save among households, the scope for active demand management through the exchange rate policy is limited. Even though it can help to increase AD, the magnitude of increase of RNY is smaller.

### **No direct impact on potential growth**

Potential growth of an economy is ultimately still determined by supply-side factors such as technological progress, capital accumulation, and the size and quality of the labour force. Unlike supply-side policies, **exchange rate policy cannot influence these supply-side factors directly**. It can only do so indirectly by providing a sound and stable macroeconomic environment with a stable currency that boosts business confidence and ensures the smooth and efficient functioning of the economy, thereby sustaining its growth.

- **Fiscal policy**

### **Conflict between growth and inflation**

Using expansionary fiscal policy to achieve growth may lead to demand-pull inflation when the economy is near to full-employment output. This is especially so when the increase in AD is not matched by an increase in SRAS/LRAS.

### **Conflict between growth and favourable BOP**

Following from the above, if demand-pull inflation results, it will lead to exports becoming less price-competitive. This might lead to a fall in export revenue.

In addition, as national income increases with economic growth, there will be an increase in import expenditure due to greater purchasing power. The extent to which imports will increase depends on marginal propensity to import (MPM). If import expenditure ( $M$ ) grows faster than export revenue ( $X$ ), the trade position and hence balance of payments position worsens, *ceteris paribus*.

### **Conflict between growth and structural unN**

As explained earlier, Singapore uses fiscal policy with strong supply-side orientation to restructure the economy and achieve growth. However, grants to encourage the growth of certain industries may lead to employment in sunrise industries but employment in other sunset industries may contract. People who are made redundant are not able to take up the jobs in other parts of the economy immediately due to mismatch between the skills of the unemployed and the skills required for the jobs available. This conflict

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is exacerbated by the speed in which production processes are modified due to developments in technology.

### **Small multiplier constraints scope of demand management**

Similar to the exchange rate policy, the **fiscal multiplier** in Singapore is relatively **low** due to high leakages. The small multiplier thus constraints the scope for active demand management through fiscal policy

### **Nature of the economy**

Singapore is highly trade-dependent with C, I and G forming a relatively smaller proportion of AD. Thus, fiscal policy has a smaller impact on the economy.

- **Supply-side policies**

### **Less effective in short-run, needs time to take effect**

Supply-side policies require long-term structural changes to be made to increase AS in the economy. They have little relevance from the point of view of short-term economic management. For example, when AD is very low (e.g. during a major recession), an increase in the capacity of the economy is of no help unless there is a corresponding increase in AD.

### **Difficult to change attitudes and mindsets**

If supply-side policies are education related, there could be difficulty in changing people's attitudes and mindsets, particularly towards retraining or switching jobs. Workers may be unwilling to switch occupations mid-career or attend training/retraining programmes.

### **Forecasting difficulties**

Manpower planning is difficult given the difficulty to accurately predict the economy's needs in the future. Given the rate of technological advancement, the economic structure of the country could change more rapidly or dramatically than the government can imagine.

- **Trade policy**

### **Increased structural unemployment**

Structural changes might occur in the economy due to economic co-operation and signing of FTAs, as different countries consolidate and focus on their competitive industries. Domestic firms existing in a relatively less competitive industry may find it difficult to compete with foreign firms and have to leave the industry. The retrenched workers from these firms might not be able to enter the new industries as they lack the necessary skills required in the new industries, leading to **structural unemployment**.

### **Widening income disparity**

The relocation and offshoring of production process in many developed countries leads to an increase in demand for skilled workers and a fall in demand for lower skilled workers. This results in an increase in wages for those with relevant skills while low or even no income for those who are displaced. There will be a widening income and wealth gap.

## **CONCLUSION/FINAL EVALUATION**

According to Tinbergen's rule which states that for every policy target, there must be at least one policy tool, Singapore will need to implement a range of policies to sustain a successful economy. Specifically, to achieve all of its macroeconomic objectives, there is a need for several alternative policies to be implemented simultaneously given the conflicts or limitations faced by the government for each policy. A careful adoption of alternative policies help to complement one another and reduce the conflicts or limitations faced.

For Singapore, the exchange rate policy complements the supply-side oriented fiscal policy very well in achieving inclusive growth, low inflation, low unemployment as well as a favourable balance of payments. One without the other would seriously limit the effectiveness of the policies. Given Singapore's need to remain competitive globally, supply-side oriented fiscal policy is still considered the key policy responsible for achieving many of its macroeconomic objectives, with the exchange rate policy playing a complementary role. With its ethos of fiscal rectitude, the MAS has been able to focus on its primary goal of ensuring price stability and preserving confidence in the domestic currency through the appropriate management of the S\$ exchange rate, without needing to balance this against the requirements of deficit financing. This has allowed Singapore to ensure low inflation for sustained economic growth and low unemployment over the medium term.

Nevertheless, careful calibration and balance between the policies going forward are even more important as global growth slows and there is an increasing protectionist stance in the world. A greater emphasis on supply-side policies may be needed since increasing productivity and encouraging innovation are two vital elements to helping Singapore achieve its macroeconomic objectives in the long-term.

<b>Knowledge, Application/Understanding and Analysis</b>		
<b>L3</b>	For an answer that uses appropriate analysis to discuss a range of policies and their effectiveness in achieving all the government's macroeconomic objectives. Discusses H & L in the context of Singapore for at least 3 policies (must include exchange rate and supply side policies) and considers all 4 macro objectives.	15 – 20 (18)
<b>L2</b>	For an answer that gives a descriptive discussion of policies and their effectiveness in achieving some of the government's macroeconomic objectives. Discusses H & L in the context of Singapore for at least 2 policies (exchange rate and supply side) and considers at least 3 macro objectives.	9 – 14 (12)
<b>L1</b>	For an answer that shows knowledge of 1 or 2 policies to achieve some of the government's macroeconomic objectives or one- sided.	1 – 8 (5)

<b>E3</b>	For an answer that uses appropriate analysis to support an evaluative conclusion about the effectiveness of alternative policies implemented by the Singapore government to achieve its macroeconomic objectives.	4 – 5
<b>E2</b>	For an answer that makes some attempt at evaluation of the effectiveness of alternative policies implemented by the Singapore government to achieve its macroeconomic objectives.	2 – 3
<b>E1</b>	For an answer that gives an unsupported evaluative statement about the effectiveness of alternative policies implemented by the Singapore government to achieve its macroeconomic objectives.	1

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## Essay 6a

### Suggested answer (a)

Countries can mutually benefit from free trade, including those countries that are the most efficient at producing all products which can be explained by the theory of comparative advantage (CA). The theory states that even where one country has absolute advantage over another in both industries, **specialisation and trade can still benefit both countries**, if each country has a comparative cost advantage. Comparative cost relates to the opportunity costs of producing the commodities.

A country is said to have a comparative advantage over another in the production of a commodity if it incurs a lower opportunity cost in producing the good or service. The cost of producing goods can be measured as an opportunity cost of not being able to produce alternative goods with the resources that are used up.

The theory assumes that there are two countries, two commodities and they have the same resource endowment and divide their resources equally between the 2 goods.

Table 1: Production pattern before specialisation

	<b>R&amp;D products</b>	<b>Pharmaceutical products</b>
<b>USA</b>	100	50
<b>Singapore</b>	5	10
<b>World Total</b>	105	60

For example, USA has absolute advantage over Singapore in the production of both R&D products and pharmaceutical products, but the margin of advantage differs in the two products. USA can produce 20 times more R&D products than Singapore using the same amount of resources, but only 5 times more for pharmaceutical products. USA is said to have comparative advantage in the production of R&D products and a comparative disadvantage in the production of pharmaceutical products and this can be illustrated by table 2.

Table 2: The opportunity cost of producing

	<b>1 R&amp;D products</b>	<b>1 Pharmaceutical products</b>
<b>USA</b>	0.5 Pharmaceutical products	2 R&D products
<b>Singapore</b>	2 Pharmaceutical products	0.5 R&D products

The sacrifice of pharmaceutical products production in producing one unit of R&D products is much lower in USA than it is in Singapore. On the other hand, the loss of R&D products production in the production of pharmaceutical products is lower in Singapore than in USA. Thus, USA has lower opportunity cost in the production of R&D products while Singapore has lower opportunity cost in the production of pharmaceutical products. This means USA has a comparative advantage in R&D products production while Singapore has a comparative advantage in pharmaceutical products production.

Assuming that USA decides to transfer 1/10 of her resources from pharmaceutical products production to R&D products production and that factors of production are perfectly mobile and costs remain constant, the production with specialisation pattern will be as shown in Table 3.

Table 3: Production pattern with specialisation

	<b>R&amp;D products</b>	<b>Pharmaceutical products</b>
<b>USA</b> <i>(Partial specialization and transfer 1/10 of resources from pharmaceutical products to R&amp;D products)</i>	110	45
<b>Singapore</b> <i>(Complete Specialisation)</i>	0	20
<b>World Total</b>	110	65

Table 3 shows that world output for both goods have now increased and both countries will now consider to trade, provided that there is a favourable terms of trade. Since USA will not pay more than 2 R&D products for 1 pharmaceutical products from Singapore (as it only takes USA 2 R&D products to produce 1 pharmaceutical product herself) and Singapore will not exchange 1 pharmaceutical products for anything less than 0.5 R&D products (as 0.5 R&D is what Singapore has given up for every unit of pharmaceutical products that she produces), 0.5 R&D products represents the lowest international price of pharmaceutical products while 2 R&D products represents the highest international price of pharmaceutical products (i.e.  $0.5 \text{ R\&D} \leq 1P \leq 2 \text{ R\&D}$ ). Conversely, the terms of trade for USA's export of R&D products must lie between 0.5 pharmaceutical products and 2 pharmaceutical products (i.e.  $0.5P \leq 1\text{R\&D} \leq 2P$ ).

The actual ratio at which goods are traded will depend on factors such as the price elasticity demand of each country's imports and exports. Assuming that the terms of trade for this example settles at 1 R&D product = 1 Pharmaceutical product and the countries trade 7 R&D products for 7 pharmaceutical products, the consumption level after trade will be as shown in Table 4.

Table 4: Consumption after trade

	<b>R&amp;D products</b>	<b>Pharmaceutical products</b>
<b>USA</b>	103	52
<b>Singapore</b>	7	13
<b>World Total</b>	110	65

**Comparing Table 1 and Table 4**, assuming that there are no barriers to trade and no transport costs, USA gains 3 units of R&D products and 2 units of pharmaceutical products while Singapore gains 2 units of R&D products and 3 units of pharmaceutical products after specialisation and trade. Both countries consume a higher level of total output and world output increases as well.

In conclusion, the theory of CA explains that countries can mutually benefit from specialization and trade in terms of **higher consumption**, based on a favourable terms of trade, which further **increase the SOL** of these countries. Moreover, these countries can benefit from **increase in variety of goods and services**, especially those goods which they do not produce themselves,

prior to trade. In actual fact, countries can benefit much more due to the dynamic benefits from specialization and trade from economies of scale and competition.

### Mark Scheme

Level	Knowledge, Application/Understanding and Analysis	Mark
L3	For an answer that gives a detailed and analytic explanation of specialisation and trade gained through explanation of comparative advantage and appropriate terms of trade.	8 – 10 (9)
L2	For an answer that describes the reasons why countries benefit from free trade or a response that only refers to specialisation or only refers to trade.	5 – 7 (6)
L1	For an answer that shows unexplained knowledge of the benefits from free trade.	1 – 4 (3)

### Question 6b

Globalisation: Increasing integration of the world economy and is characterised by greater international interdependence among economies.	
P1: Desirable (positive impacts)	P2: Undesirable (negative impacts)
<p>↑ <b>openness and trade</b> → ↑ scope for specialization and trade according to Theory of CA → ↑ world output and consumption → ↑ variety of goods and services → ↑ <b>SOL</b></p> <p>↑ <b>openness and trade</b> → ↑ scope for trade → ↑ X &gt; ↑ M → ↑ AD → ↑ RNY by multiplied amount → achieve <b>actual growth</b></p> <p>↑ RNO → demand for labour ↑ since demand for labour is derived from the demand of final goods and services → ↑ <b>employment</b></p> <p>↑ RNO → ↑ production → ↑ scope to reap EOS (especially for small countries like Singapore with small domestic markets → increased market size through increased openness and trade allows them to increase their scale of production) → achieve <b>productive efficiency</b></p>	<p>↑ <b>openness and trade</b> → allow for offshoring to occur → differences in the demand for high-skilled workers and low-skilled workers → differences in the wages of these 2 groups of workers → income gap ↑ → worsen <b>equity</b> across countries</p> <p>↑ <b>openness and trade</b> → ↑ vulnerability to external shock (i.e. open economies such as Singapore was one of the first to be hit during the global financial crisis in 2009) → ↓ X → ↓ AD → ↓ RNY by a multiplied amount → <b>worsen actual growth</b></p> <p>↓ RNO → demand for labour ↓ since demand for labour is derived from the demand of final goods and services → ↑ <b>demand-deficient employment</b></p> <p>↓ X-M (extend from the point above) → worsen current account and hence <b>BOP position</b></p> <p>↑ <b>openness and trade</b> → susceptible to rising costs of imported raw material</p>

	<p>→ COP ↑ → SRAS ↓ → worsen <b><u>price stability</u></b></p>
<p>↑ <b>capital mobility</b> → allows for inflow of FDI → improve long term capital flow and hence capital and financial account, thus improving <b><u>BOP position</u></b></p> <p>Inflow of FDI could bring about technological transfer which improves the quantity and quality of FOP. LRAS ↑ → productivity capacity ↑ → achieve <b><u>potential growth</u></b></p> <p>↑ productivity could have a knock-on effect on SRAS → COP ↓ → SRAS ↑ → coupled with the ↑ AD, SRAS and LRAS → achieve <b><u>price stability</u></b></p>	<p>↑ <b>capital mobility</b> → allows for inflow of FDI who may bring technological transfer → if the local workers do not have the skills required to operate such technology → mismatch of skills → <b><u>structural unemployment</u></b> ↑</p> <p>↑ <b>capital mobility</b> → If FDI are footloose and withdraw capital in times of negative outlook → worsen long term capital flow and capital and financial account → <b><u>worsen BOP</u></b></p>
<p>↑ <b>labour mobility</b> → inflow of foreign talents and/or workers → improve the quality and quantity of FOP (especially desirable for Singapore that faces a declining birth rate and an ageing population → thus ensuring increase in the pool of productive labour) → LRAS ↑ → productivity capacity ↑ → achieve <b><u>potential growth</u></b></p> <p>↑ productivity could have a knock-on effect on SRAS → COP ↓ → SRAS ↑ → coupled with the ↑ AD, SRAS and LRAS → achieve <b><u>price stability</u></b></p>	<p>↑ <b>labour mobility</b> → allows for ↑ demand for cheaper foreign labour → displace more expensive local workers → ↑ unemployment of local workers</p> <p>↑ <b>labour mobility</b> → skilled workers leave countries in search of better wages → brain drain in home country → ↓ quality and quantity of FOP → LRAS ↓ → productivity capacity ↓ → worsen <b><u>potential growth</u></b></p> <p>Brain drain could lead to concentration of low value-added production in certain countries → worsen <b><u>equity</u></b> across countries</p>
<p>↑ <b>competition</b> → firms are more likely to conduct R&amp;D which may bring about technology advancement → improve the production process → LRAS ↑ → productivity capacity ↑ → achieve <b><u>potential growth</u></b></p>	<p>↑ <b>competition</b> → countries may speed up process of structural changes in search of new CA → workers without the relevant skills will not be employed due to mismatch of skills → <b><u>structural unemployment</u></b> ↑</p>

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**Evaluation: (Give a stand and justify)**

- Depends on the various policies implemented to address the costs of globalization → For example: Singapore has implemented policies such as the foreign worker quota to restrict the inflow of foreign labour and Skillsfuture to improve the skills of workers to keep them relevant in the changing economy → **thus, globalization will be more desirable**
- Depends on the nature of economy → For example Singapore being small and lack natural resources → cannot turn to small domestic market for growth → have to open her market to the rest of the world to reap the benefits of globalization → **thus, globalization will be more desirable**

**Mark Scheme:**

Level	Knowledge, Application/Understanding and Analysis	Mark
L3	For a balanced answer that uses appropriate analysis and framework to discuss if globalisation is often but not always desirable, with good usages of examples	8 – 10 (9)
L2	For a balanced answer that gives a descriptive discussion if globalisation is often but not always desirable, with limited usages of examples	5 – 7 (6)
L1	For an answer that shows superficial discussion if globalisation is often but not always desirable	1 – 4 (3)
E3	For an answer that arrives at an analytically well-reasoned judgement about whether globalisation is desirable	4 – 5
E2	For an answer that makes some attempt at a judgement about whether globalisation is desirable	2 – 3
E1	For an answer that gives an unsupported statement about whether globalisation is desirable	1