2023 EJC JC2 H2 Economics Preliminary Examination
Paper 2
Suggested Answers, Mark Schemes and Markers' Report

Essay Question 1

In 2022, the tablet market remains dominated by Apple, with Samsung coming in second. Apple engages in various marketing strategies and Apple Education Pricing. The promotional Apple Education Pricing is available to students but not to the public.

(a) Explain what needs to be considered when a rational firm like Apple makes decisions on pricing and non-pricing strategies. [10]

(b) Discuss the extent to which consumers as well as other firms are negatively affected by Apple's dominance in the tablet market. [15]

Part (a) – Question Analysis

Question Analysis Framework		Details
Approach	**Command word**	Explain what: Make clear the factors
	Start point	Objectives of a rational firm
	End point	Decision making on pricing and non-pricing strategies
Content & Context	**Content** (Scope of coverage)	Decision-making framework Marginalist principle: MC = MR Revenue and cost analysis
	Context	Rational firm like Apple; Tablet market

Introduction

While firms could pursue various objectives, the traditional objective of a rational firm like Apple is to maximise profits at Marginal Revenue (MR) = Marginal Cost (MC). To maximise profits, Apple can either raise total revenue (TR) or lower total cost (TC) by engaging in pricing and non-pricing strategies. In making decisions on pricing and non-pricing strategies to engage in, a rational firm like Apple will need to consider its benefits, costs and constraints.

Body Point 1: Benefits of pricing and non-pricing strategies → raise TR or lower TC → Profits rise
Pricing strategies:
- The tablet market can be characterised as an oligopoly with high barriers to entry and few dominant firms such as Apple and Samsung. As oligopolistic firms are mutually interdependent, one firm's behaviour greatly affects its rivals. Apple would likely avoid price competition since prices tend to be rigid or sticky but may engage in 3rd degree price discrimination like the Apple Education Pricing.
- For instance, with no cost difference, Apple charges a lower price for students since tablets like iPad take up a larger proportion of their income. The lower price charged in the price elastic market will result in a more than proportionate rise in quantity demanded, therefore total revenue rises.
- On the other hand, the public (other than students) will be charged a higher price since the price of iPad is likely to take up a relatively smaller proportion of their income. A rise in price

will bring about a less than proportionate fall in quantity demanded, hence, total revenue increases.
- Thus, the benefit of engaging in pricing strategies such as 3rd degree price discrimination is to raise total revenue.
- *Limit/predatory pricing also accepted.*

OR

Non-pricing strategies:
- Apple's marketing campaigns consistently highlight simplicity, design, and innovation, from the minimalist design of its products to the innovative features that differentiate them from rivals like Samsung. By establishing a brand identity that is instantly recognisable and resonates with consumers, Apple has built a solid emotional connection with its customers and a loyal fan base.
- As a result, demand for Apple's tablets rises, and the degree of substitutability between products are weakened, making demand for Apple products more price inelastic.
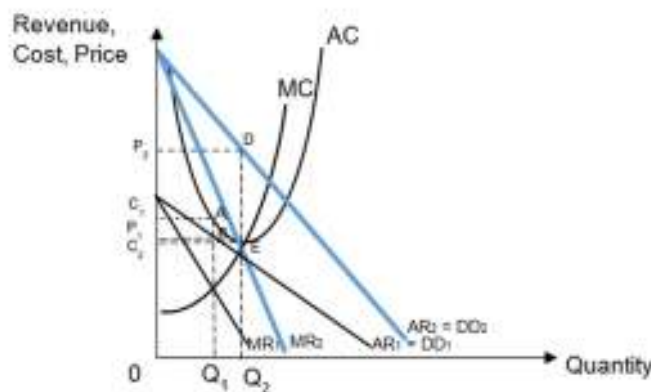

Figure 1: Benefit of marketing

- With the DD/AR and MR curves shifting from AR_1 and MR_1 to AR_2 and MR_2, Apple will then be able to charge higher prices P_2 and sell more output Q_2, hence earning higher revenue and higher profits P_2DEC_2, assuming costs remain unchanged.
- *Innovation and R&D aimed at raising revenue also accepted*

OR

- Apple engages in Innovation and R&D specifically process innovation allows Apple to raise productivity and/or lower costs by finding more efficient methods of production. Hence, AC and MC falls. Assuming revenue remains unchanged, Apple's profits will rise from area P_1abC_1 to P_2deC_2.
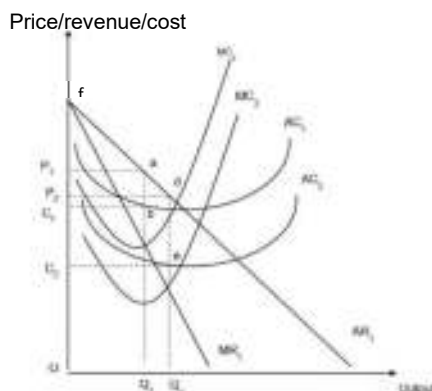
Price/revenue/cost

Figure 2: Benefit of process innovation

Body Point 2: Costs of strategies → TR may not rise; TC may not fall → Profits may not rise
- 3rd degree price discrimination – Revenue may not rise if Apple is unable to segment the market appropriately to prevent resale.
- Marketing is expensive, i.e., costs incurred to engage an advertising firm to conceptualise and run the advertising campaign, and result is not guaranteed.
- R&D is expensive and a long-drawn process - revenue may not rise and cost may not fall in the short run and result is not guaranteed.
- Opportunity costs incurred

Point 3: Constraints
- 3rd degree price discrimination – Ability to fulfill all conditions to practice price discrimination.
- Non-pricing strategies – Financial constraints (previous supernormal profits to tap on); resource constraints (availability of skilled labour and capital to engage in innovation, R&D); time constraint (of work processes or to witness the effects of strategies adopted).

Conclusion

As each strategy involves costs, Apple needs to make a rational decision by weighing the costs and the benefits to determine which strategy should be adopted. Apple will only carry out strategies if they expect rise in benefits to exceed the rise in costs, in other words, MR > MC.

Part (b) – Question Analysis

Question Analysis Framework		Details
Approach	**Command word**	Discuss the extent – Balanced answer with evaluation
	Start point	Negative impact of firms' strategies
	End point	Extent of negative impact
Content & Context	**Content** (Scope of coverage)	Impact of firms' strategies on: • Consumers – Consumer surplus (price); Consumer welfare (quality, variety, choice) • Other firms – Revenue, costs and profits Revenue and costs analysis
	Context	Apple's dominance in the tablet market

Introduction
Apple's dominance in the tablet market brings about negative impacts on consumers as well as other firms. The extent to which consumers and other firms are affected negatively depends on a few factors.

Negative impact of Apple's dominance on consumers
Fall in consumer surplus
Apple's dominance in the tablet market allows the firm to enjoy long run supernormal profits, which would be channelled to engaging marketing strategies by tapping on salience bias (website, advertising campaigns) → Further strengthens Apple's market power/market dominance as demand rises, and becomes more price inelastic since brand loyalty rises → Greater ability to restrict output and raise prices as barriers to entry rises as well → ↓ Consumer surplus

Consumer surplus may not fall/Consumer surplus may rise
However, Apple's dominance enables it to engage in innovation and R&D. Process innovation such as new/improved production processes allow Apple to raise productivity and lower costs by find more efficient methods of production → AC and MC falls from AC_1 and MC_1 to AC_2 and MC_2 respectively → Assuming Apple passes on the cost savings by lowering prices of iPads → ↑ Consumer surplus from P_1fa to P_2df
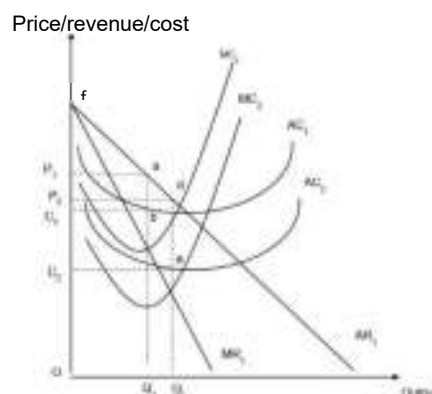

Figure 3: Impact of Apple's dominance on consumer surplus

OR

Rise in consumer welfare – choice and product quality
Apple's dominance in the tablet market would allow for it to enjoy larger supernormal profits which further increases the firm's ability to engage in innovation and R&D. Product innovation → product proliferation results in extensive choices and models available to consumers; improves the quality and increases range/variety of Apple products such as iPad Air, iPad Pro and iPad mini and accessories such as Apple Pencil and keyboards → ↑ Consumer welfare

Body Point 2: Negative impact of Apple's dominance on other firms like Samsung
Rise in other firms' costs
Given the mutual interdependence and rival consciousness in the tablet market, rival firms such as Samsung will experience higher costs to compete effectively with Apple via marketing/innovation, R&D which are expensive. Furthermore, product innovation is crucial to release new products every year to compete effectively with Apple, hence, it is likely that other firms in the tablet market will face higher costs.

Therefore, with costs rising, profits of rival firms like Samsung and ASUS are likely to fall as a result of Apple's dominance in the tablet market.

Fall in other firms' revenue
Given that Apple has successfully built strong brand loyalty, other rival firms like Samsung or ASUS will likely experience a fall in demand for their products as consumers switched over to using Apple products → Leftward shift of DD/AR and MR from DD1=AR1 and MR1 to DD2 = AR2 and MR2
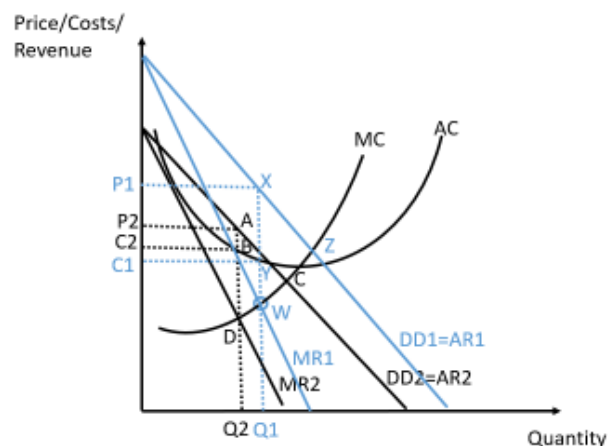

Figure 4: Impact of Apple's dominance on other firms' revenue

Therefore, with revenue falling, profits of other rival firms such as Samsung and ASUS are likely to fall from P1XYC1 to P2ABC2 as a result of Apple's dominance in the tablet market.

Fall in other firms' costs
However, Apple's dominance in the tablet market allows for it to retain supernormal profits in the long run. Thus, Apple has the willingness and the ability to engage in large scale, radical innovation. This is especially so in view of how competitive the tablet industry is. In addition, these

firms are well-resourced to carry out expensive R&D efforts by drawing on their supernormal profits. When Apple engages in process innovation, there would be positive externalities generated as other firms in the industry will also benefit from such breakthrough innovations and learn useful lessons from Apple's experiences including knowledge, ideas and information. This will minimise unnecessary wastage of resources that can now be channelled to more productive uses. Hence, other firms in the tablet market enjoys lower R&D and innovation costs as a result of Apple's dominance and assuming no changes in revenue, profits of these firms will rise.

Rise in other firms' revenue
However, firms selling **complementary** goods and/or services such as Logitech Bluetooth tablet keyboards and Casetify cases will likely experience a similar rise in demand for their products with the dominance of Apple in the tablet market. Similarly, iPad app developers will also enjoy a similar rise in demand and hence revenue for their products with more consumers using Apple products. Assuming cost remains unchanged, profits for these firms will likely rise.

Overall summative EV/conclusion
In conclusion, the extent of negative impact of Apple's dominance on consumers is likely to be small given that the market for tablet is highly competitive. Even though prices of Apple products have been on the rise, Apple has released tablets of different price range to cater to different groups of consumers yearly. For instance, iPad Air and iPad mini are priced lower compared to the iPad Pro, mitigating the impact of inequity as lower-income consumers still have access. Furthermore, Samsung and Apple have been releasing new tablet models every year with enhanced specifications and functions such as camera and fingerprint sensors, ensuring that consumer welfare continues to rise. Thus, the **negative impact on consumer welfare** is relatively **small**.

However, the extent of negative impact of Apple's dominance on other firms **depends on the nature of the products** these other firms are selling. Rival firms like Samsung and ASUS selling tablets that are considered as **close substitutes to Apple's iPads** are likely to suffer **negative impact to a larger extent** as revenue falls and costs rise. But having said that, the ability for these firms to survive is also dependent on the level of supernormal profits the firm has accumulated. Samsung would have accumulated larger supernormal profits, and hence would have greater ability to engage in strategies to prevent the fall in revenue or rise in costs, compared to ASUS. Om the other hand, **firms selling complementary goods and services** to tablets will likely experience **positive** impact of Apple's dominance.

Essay Question 2

(a) Explain how the price mechanism allocates resources in the face of shortages. [10]

(b) Crude oil prices fell significantly by 20.6% in 2020, partly due to increased output by Russian and Saudi Arabian oil producers. However, crude oil prices recovered sharply by 55% in 2021 as the world emerged from COVID-19 restrictions.

Discuss the demand and supply reasons for the respective changes in crude oil prices in 2020 and 2021. [15]

Part (a) – Question Analysis

Question Analysis Framework		Details
Approach	**Command word**	Explain how – process
	Start point	Shortages
	End point	Allocation of resources
Content & Context	**Content** (Scope of coverage)	Price mechanism (Signalling, Incentivising, Rationing) Shortage ($Q_{dd} > Q_{ss}$)
	Context	No specific context – provide own context

A shortage refers to a situation where quantity demanded for a good is greater than quantity supplied of a good. A shortage can result due to an increase in demand or a fall in supply. For example, the re-opening from COVID-19 has resulted in increased demand for transport services, thus resulting in increase in demand for crude oil (which is used to produce the factors of production for transport services, such as petrol and aviation fuel). As shown in the figure below, this will result in a rightward shift of the demand curve from DD_0 to DD_1. At the current market equilibrium price P_0, this results in a shortage ($Q_{dd}>Q_{ss}$) *Note: you can use other examples.*

In the face of shortages, the price mechanism allocates resources via the signalling, incentivising and rationing functions.

Signalling And Incentive Functions
This shortage creates an upward pressure on prices. The increase in price will signal to producers to allocate more resources to the production of crude oil.
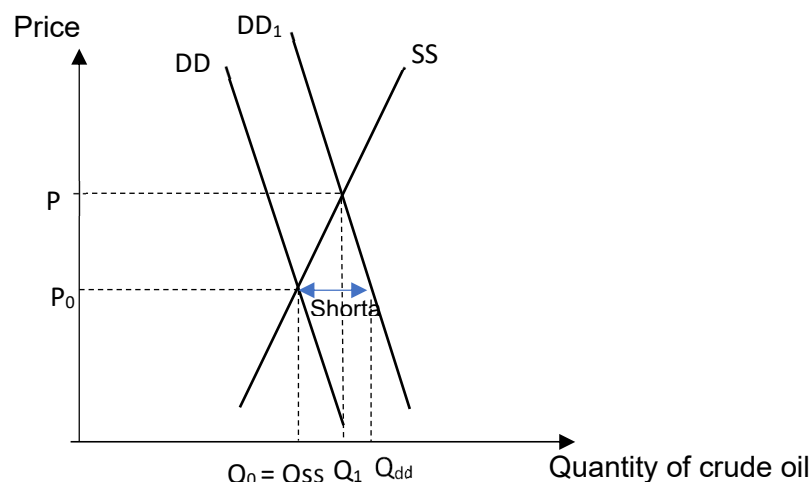
In particular, the increase in the price of crude oil leads to an increase in profits (assuming average costs remain relatively constant). In other words, producers are incentivised to allocate more resources, such as capital and labour, to the production of crude oil, resulting in an increase in the quantity supplied of crude oil from Q_0 to Q_1.

At the same time, the increase in prices signals to consumers to consume less crude oil. Consumers will be incentivised to consume less crude oil due to an increased cost of consumption, which will lead to a fall in utility. This fall in consumption is represented as a fall in the quantity demanded for crude oil from Q_{dd} to Q_1.

The price of crude oil will continue to increase until P_1, where the shortage is eliminated i.e. quantity demanded = quantity supplied at equilibrium quantity Q_1. This removes the upward pressure on the price of crude oil. Producers are no longer incentivised to increase production and consumers are no longer incentivised to reduce consumption.

In summary, a shortage results in an upward pressure on prices, which then signals and incentivises producers to allocate more resources, such as labour and capital, to the production of the good (in the case crude oil), until the shortage is eliminated. In other words, the market for crude oil adjusts to a new equilibrium via the price mechanism, with a new equilibrium price P_1 and equilibrium price Q_1.

<u>Rationing function</u>
In the crude oil market, crude oil will be sold to consumers who are willing and able to pay equal or higher than the equilibrium price, P_1, for crude oil i.e. consumers who are only willing to pay below P_1 will not be able to purchase crude oil. Since the price that each consumer is willing and able to pay represents the value that consumers assign to a good, the price mechanism rations the equilibrium quantity of crude oil, Q_1, to consumers who value the good the most.

Part (b) – Question Analysis

Question Analysis Framework		Details
Approach	**Command word**	Discuss – Balanced + EV
	Start point	SP1: Increase in output of crude oil
		SP2: Emerging from covid-19 restrictions.
	End point	EP1: Significant fall in crude oil prices
		EP2: sharp rise in crude oil prices
Content & Context	**Content** (Scope of coverage)	Changes in SS and DD
		Elasticity concepts (PED, PES)
	Context	Crude Oil

<u>Reason for significant fall in crude oil prices in 2020</u>

In 2020, the price of crude oil fell significantly, and this was mainly due to an increase in supply by Russian and Saudi Arabian oil producers. Crude oil is an essential raw material that is used to produce important intermediate goods such as petrol, aviation oil, plastics and various important chemicals. Thus, the demand for crude oil is like to be price inelastic. The increase in supply, from SS_1 to SS_2, results in surplus (Qss > Qdd) at the current price level, P_1. This causes a downward pressure on prices from P_1 to P_2 and via the price mechanism as explained in (a), a less than proportionate increase in quantity demanded for crude oil (from Q_1 to Q_2). In other words, the increase in supply has resulted in a more than proportionate fall in the price of crude oil relative to the increase in quantity demanded, thus resulting in a significant fall in the price of crude oil.

Intermediate EV: However, there could also be other factors that could have resulted in the significant fall in price of crude oil. For example, there is likely to be a fall in demand for crude oil during the Covid-19 pandemic due to a slowdown in travel and transportation, which would lead to a fall in the derived demand for crude oil, which will create a surplus and lead to lower prices for crude oil.

It is also possible to argue that the PED for crude oil could be more than one as more countries have been transiting to natural gas or other forms of renewable energy. In other words, the increase in supply may not be a significant factor in explaining the fall in price. Instead, the sharp fall in prices could be due to a combination of both an increase in supply and a fall in demand for crude oil (*as explained previously).*
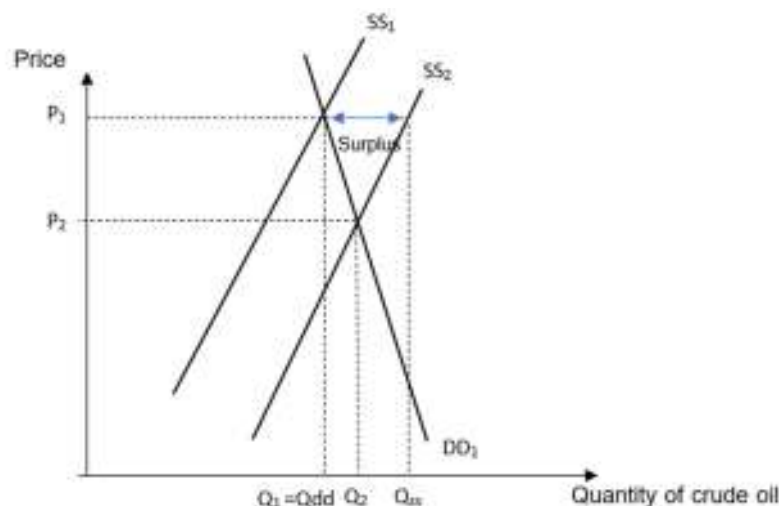
Reason for significant rise in crude oil prices in 2021

In 2021, the price of crude oil rose significantly, and this was mainly due to an increase in demand as the world emerged from the Covid-19 pandemic. As activity such as people travel and industrial production increased, the demand for factors of production such as petrol, electricity, aviation oil increased. This increases the derived demand for crude oil, as shown by an increase in demand from DD_2 to DD_3 (as shown in the diagram below). In addition, the supply for crude oil is price inelastic as it is raw material found deep within the earth's crust and the exploration and extraction for new oil wells may take a significant amount of time. Thus, producers are less likely to be able to respond to price changes in the short run.

The increase in demand for crude oil results in a shortage (Qdd > Qss) at the current price level, P_2. This causes an upward pressure on prices from P_2 to P_3, and via the price mechanism as explained in (a), a less than proportionate increase in quantity supplied for crude oil (Q_2 to Q_3). In other words, the increase in demand for crude oil has resulted in a more than proportionate increase in the price of crude oil relative to the increase in quantity supplied, thus resulting in a significant increase in the price of crude oil.
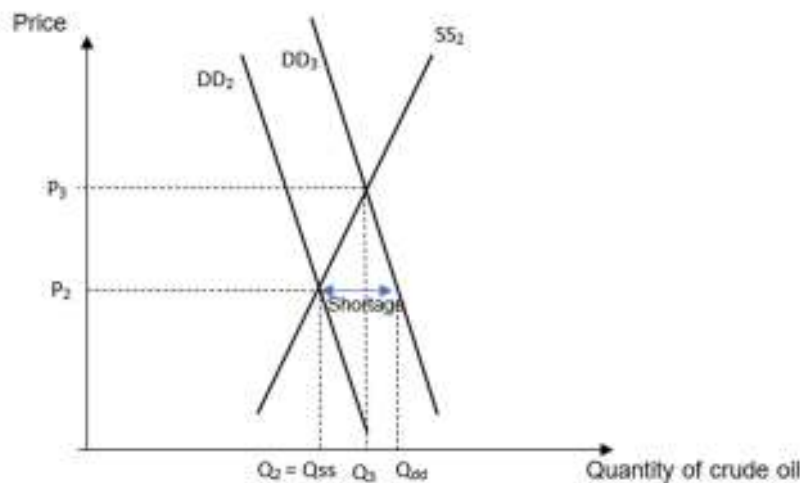
Intermediate EV: However, many producers have built up significant stockpile of crude oil, especially with the surplus in 2020. Thus, the supply of crude oil may be price elastic as these producers will be able to respond to the increase in demand quickly with the existing stockpile. In other words, the sharp increase in the price of crude oil could be more due to other demand factors, or a fall in supply instead of an increase in demand.

Summative EV:

Overall, the preamble only provides only 2 possible factors that could have led to the reported changes in prices in crude oil. There could be other factors, such as the increasing use of renewable energy (a substitute of crude oil) which could have led a fall in demand for crude oil, thus accounting for the fall in price in 2020. Similarly in 2021, there could also have been other reasons for the rise in crude oil prices, such as a reduction in output by the Russian and Saudi Arabian producers so as to bring prices back up to a profitable level.

Moreover, prices of crude oil have had an overall increase over the 2020 and 2021 period. This is likely because the increase in demand for crude oil is likely to be greater than the increase in supply of crude oil. The likely reason for this is because Russia and Saudi Arabia are just 2 crude

oil producers, and an increase in their output may not have shifted the supply of crude oil by a large extent. In contrast, the increase in demand upon lifting of Covid-19 restrictions is worldwide, and this is likely to have increased demand for crude oil by a large extent.

Essay Question 3

The Singapore government has been advocating the use of digital payments, citing hidden benefits such as increased hygiene and convenience. However, a rise in scams has resulted in some consumers using less digital payments.

(a) Explain how imperfect information could cause the market for digital payments to fail and how a rise in scams is likely to worsen market failure. [10]

(b) Discuss whether public education is the most appropriate policy to address market failure in digital payments in Singapore. [15]

Part (a) – Question Analysis

Question Analysis Framework		Details
Approach	**Command word**	Explain how – process
	Start point	SP1: Information Failure
		SP2: Rise in scams
	End point	EP1: Market Failure
		EP2: Worsen Market Failure
Content & Context	**Content** (Scope of coverage)	Market Failure, DWL
	Context	Digital payments

How imperfect information can cause the market for digital payment to fail

Imperfect information can result in an underconsumption of digital payments. When deciding to use digital payments, such as PayNow, FavePay, GrabPay, consumers will consider the perceived benefits of consuming digital payments, such as a greater ability to track their own spending via the digital payments app. The consumers will also consider the perceived cost of using digital payments, such as the need to install such apps and the need to provide personal information the digital payments providers. Thus, rational consumers will consume digital payments until the quantity, Q_p, where MPBperceived (MPBp) = MPCperceived (MPCp) so as to maximise utility. However, the consumers may not be fully aware of the full benefits of using payments, such as increased hygiene from not using cash, especially during Covid pandemic. In additional, there could be hidden benefits as a reduced need to continuously withdraw or hold large amounts of cash, which reduces the chances of these consumers being a victim of physical crime. Thus MPBperceived (MPBp) will be lower than MPBactual (MPBa), as shown by the divergence in the MPBp and MPBa curves. At Qp, assuming perceived cost = actual cost, MPBa > MPCa. Thus, consuming an additional unit of digital payment will add on more to actual benefit that it adds on to actual cost. Thus, society can be made better off if consumers increase consumption to Qs, where MPBa=MPCa. In other words, if left to the free market, there is an underconsumption of digital payments, resulting in a DWL as shown by the area GEF, resulting in market failure.
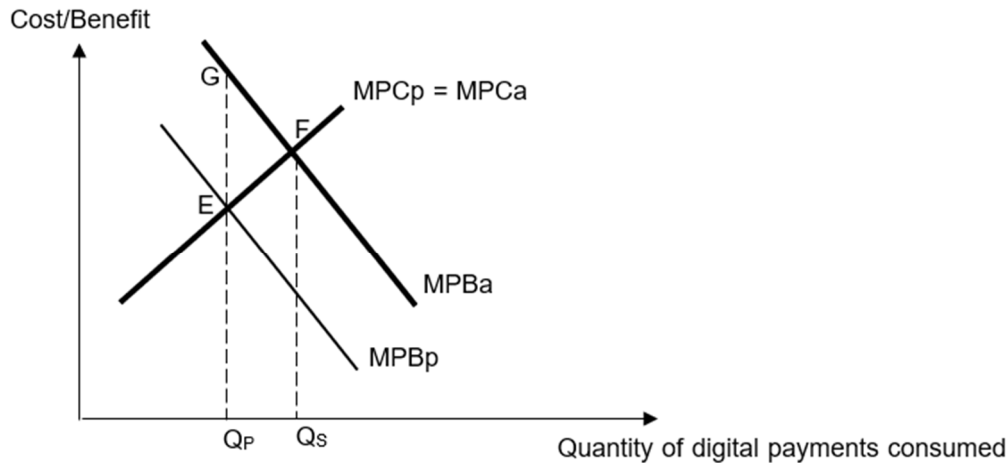
Figure 1: Information failure in consumption of digital payments

How a rise of scams might worsen market failure

There has been a rise in scams in using digital payments, such as spoof QR codes which has caused some users to transfer money to unknown accounts or increased hacking of digital payment systems which has also resulted in monetary and information losses. This has increased the perceived cost of using digital payments, resulting in a leftward shift of the MPC from MPCp to MPCp'. At Qp, MPCp > MPBp. Rational consumers will now reduce consumption of digital payments since the addition to private cost will now be greater than the additional to private benefits. Thus they will now reduce consumption to Qp', where MPCp'=MPBp so as to maximise utility. At Qp', MPBa is now greater than MPCa to a larger extent, resulting in an increase in DWL from area GEF to area IHF. Thus, market failure worsens.
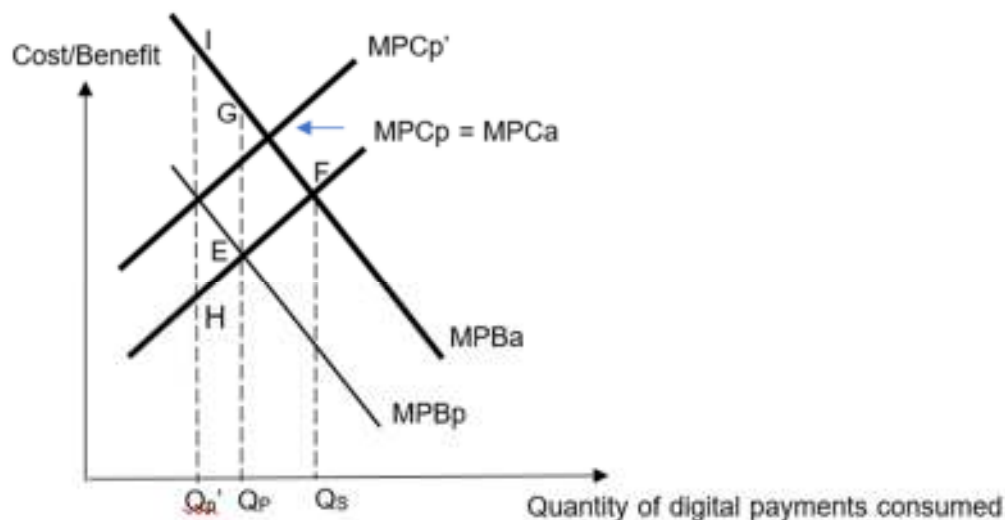

Figure 2: Scam worsens market failure

Part (b) – Question Analysis

Question Analysis Framework		Details
Approach	**Command word**	Discuss: Balanced answer with a reasoned judgement
	Start point	Policy (Public education + another policy)
	End point	Addressing market failure
Content & Context	**Content** (Scope of coverage)	How the policies work
		Limitations of the policies
	Context	Singapore, Market for digital payments

The Singapore government can address the market failure with a few policies but I will just focus on public education as well as subsidies.

<u>Public education address market failure in digital payments</u>
One way the government can address the market failure is provide more information to the public about the hidden benefits of digital payments. This can be done via advertising on both traditional and social media, roadshows, or even door-stop visits to households who may not be on social media. By educating more consumers on the hidden benefits of digital payments, this will result in increased perceived benefits, as shown by a rightward shift of the MPB curve from MPBp to MPBp' (which is equal to MPBa).

Such public education can also include educating the public about possible scams, such as setting up websites highlighting possible scams, and inviting consumers to invite scam prevention apps such as ScamShield. This will reduce the perceived costs of consuming digital payments, as shown by a rightward shift of the MPC curve from MPCp' back to MPCp.

Thus, the rational consumer will increase consumption of digital payments to Qs (where MPBp' = MPCp) in order to maximise utility. At Qs, MPBa=MPCa, and societal welfare is maximised, with deadweight loss eliminated.
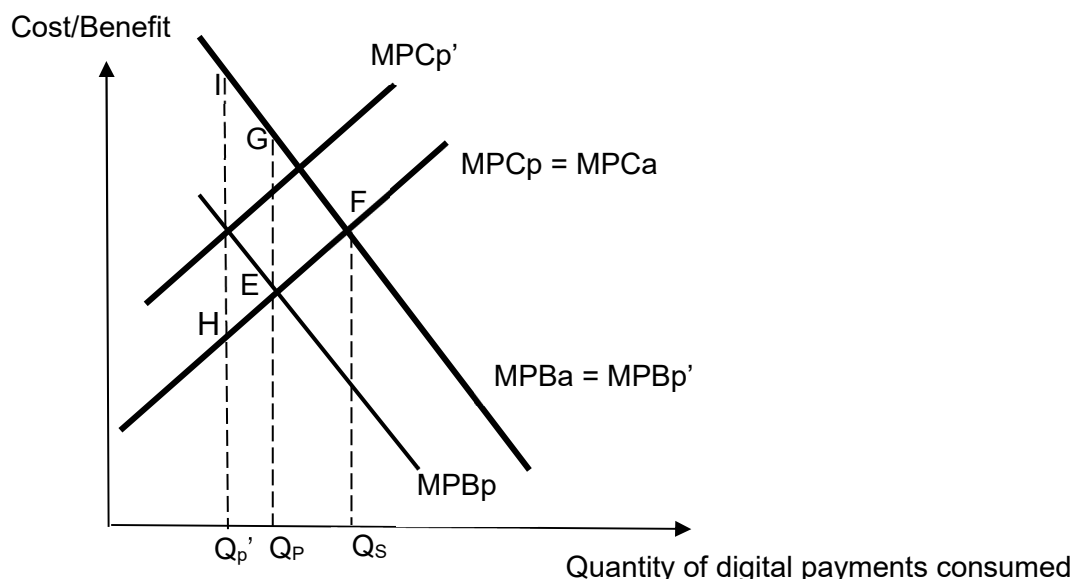

Figure 3: Public education to address market failure

Intermediate EV
However, public education can take time to work as it takes time to change people's mindset, especially since digital payment scams are becoming more rampant and increasingly sophisticated, and it will not be easy to lower the perceived costs (especially due to salience bias since scams are usually widely and prominent reported via the different media channels) of using digital payment i.e. MPC will not fall sufficiently, resulting in DWL persisting. Thus, in the short run, it is unlikely that public education can be fully effective in addressing the market failure.

Subsidies address market failure in digital payments
Another way that governments can address the market failure is to provide subsidies for using digital payment. For example, this can involve working with the private sector to provide a discount on purchases using digital payments. By providing a subsidy equal to the gap AB, this will reduce the perceived costs of consuming digital payments, as shown by a rightward shift of the MPC curve from MPCp' to MPCp". the rational consumer will increase consumption of digital payments to Qs (where MPBp = MPCp'') in order to maximise utility. At Qs, MPBa=MPCa, and societal welfare is maximised, with deadweight loss eliminated.
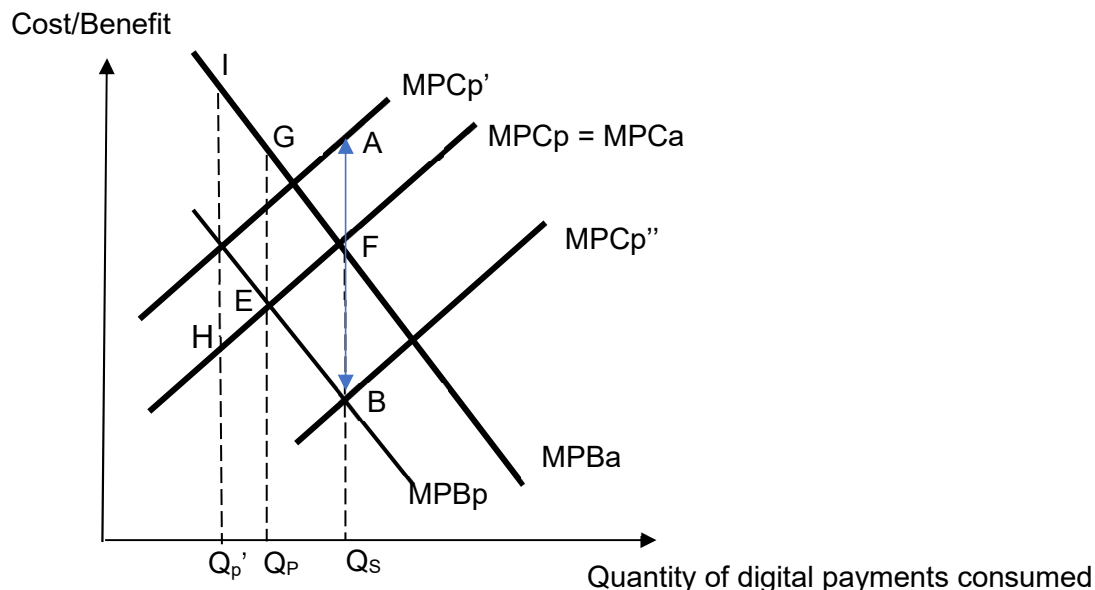

Figure 4: Subsidy to address market failure

Intermediate EV
However, subsidies can be costly in the long run, especially since the gap AB can be quite large if there are increasing and more sophisticated scams, which may result in a further increase in perceived costs of consuming digital payments. Thus, underconsumption and market failure can still remain. Nonetheless, for countries such as Singapore, the expected outlay on subsidising digital payments can still be supported by prudent government budgeting and spending, especially if the subsidy to use digital payments is also supported by the private sector.

Summative EV
In all, it is likely that a combination of both policies can be used to address the market failure in the consumption of digital payments. In the short run, providing subsidies will have a more immediate effect but in the long run, public education is definitely the most appropriate policy to address the

market failure in the consumption of digital payments as it addresses the root cause (information failure) of the market failure.

Essay Question 4

The examination of a country's economic health and performance hinges upon a comprehensive analysis of various indicators. Some key economic indicators such as GDP growth rate, inflation rate and Gini coefficient, serve as crucial tools for economists and policymakers to gauge the overall well-being of an economy.

(a) Explain the link between GDP growth rate, government budget position and balance of trade position. [10]

(b) Discuss the extent to which the above key economic indicators are relevant in measuring the change in an economy's living standards. [15]

Part (a) – Question Analysis

Question Analysis Framework		Details
Approach	**Command word**	Explain the link – Relationship
	Start point	GDP growth rate, government budget position and balance of trade position
	End point	The relationship of GDP growth rate, government budget position and balance of trade position
Content & Context	**Content** (Scope of coverage)	GDP Government budget BOT
	Context	No specific context

Introduction

The link between GDP growth rate, government budget position, and balance of trade position is a fundamental aspect of a country's overall economic performance. These three factors are interconnected and can influence each other in various ways.

Body

The GDP growth rate refers to the percentage change in GDP from one period to another (usually measured quarterly or annually). It indicates the pace at which a country's economy is expanding or contracting. A higher or positive GDP growth rate typically indicates a healthier and more dynamic economy, while a lower or negative growth rate may suggest economic stagnation.

The government budget position, often referred to as the fiscal balance, is the difference between government revenues (such as taxes) and government expenditures (such as public spending). A government can have a budget surplus if revenues exceed expenditures, a budget deficit if expenditures exceed revenues. The budget position reflects the government's ability to manage its finances and can have implications for economic stability, public debt levels, and potential policy interventions.

The balance of trade position is the difference between a country's export revenue (revenue earned by selling goods and services to other countries) and import expenditure (expenditure incurred by buying goods and services from other countries). If a country's export revenue exceeds its import expenditure, it has a balance of trade surplus. If import expenditure exceeds export revenue, it has a balance of trade deficit. The balance of trade position reflects the

competitiveness of a country's industries, its global trade relationships, and the overall health of its international trade.

How the GDP growth rate influences the government budget position
A high GDP growth rate often leads to a reduction in unemployment rates as businesses expand and create more jobs. This results in higher income levels and subsequently, higher personal income tax revenue for the government. Businesses tend to perform well during periods of robust economic growth, leading to higher profits. This will in turn translate to higher corporate tax revenues for the government. Economic growth encourages consumer confidence, leading to increased spending on goods and services. This generates more sales tax and value-added tax revenues, such as GST for the Singapore government. Furthermore, the government need not increase their spending to stimulate economic activity and support citizens through social welfare programmes. This can lead to lower government expenditures. As a result of these factors, higher GDP growth generally leads to an uptick in tax revenues and a reduction in government expenditures. This can help improve the government budget position, thereby reduce budget deficits or even create budget surpluses.

How the GDP growth rate influences the balance of trade position
During periods of high GDP growth rates, the economy is typically expanding. With increased economic activity and higher incomes, consumer confidence tends to rise, leading to higher consumer spending. This increased spending can drive up demand for a wide range of goods, including both domestically produced and imported products. Robust economic growth can encourage businesses to invest in expanding their operations, which may involve purchasing capital goods and machinery from foreign suppliers. This can contribute to higher import spending. In Singapore, many industries rely on imported raw materials, intermediate goods, and components to manufacture their products. Higher GDP growth rates can lead to increased production in these industries, leading to a higher demand for imported raw materials. If the increase in import expenditure driven by robust domestic demand can outpace the growth in export revenue, this potentially leads to a balance of trade deficit.

Alternatively, higher GDP growth rates can also have a positive impact on a country's export capabilities, potentially leading to a balance of trade surplus. Robust economic growth can lead to increased investments in technology, infrastructure, and skills. These investments can enhance a country's productivity, making its goods and services more competitive in international markets. Economic growth also goes hand in hand with innovation and the development of new products. These innovative products can penetrate markets abroad, creating new export opportunities. When a country's export competitiveness is bolstered by economic growth, it can lead to increased international demand for its exports, resulting in higher export revenue. If the growth in export revenue outpaces the growth in import expenditure, it can lead to a balance of trade surplus.

How the balance of trade position influences the GDP growth rate
A balance of trade surplus indicates that the country is exporting more goods and services than it is importing, which contributes an improvement of its net exports. As net exports $(X - M)$ increases, AD rises, ceteris paribus, as represented by a rightward shift of AD (from AD_1 to AD_2). The economy faces an unplanned running down of stocks of capital goods. To maintain the level of stocks in the inventories, firms will step up their production of capital goods by hiring more resources (i.e.,

purchasing more capital, using more land space and hiring more labour). This in turn leads to these factor owners (of the capital, land and labour), as well as the entrepreneurs running these firms to receive an extra income, raising the national income in the first round. As national income starts to rise, it will induce more consumption in the economy. Since one person's spending becomes another person's income, the additional consumption by the first group of factor owners will now create additional income for another group of factor owners in the economy. National income will now rise by another round, albeit by a smaller amount. This rise in income will once again generate another round of consumption in the economy. As consumption rises for another round, so too will production, output and income. This process will then continue, with each round of increase becoming smaller; until the rise in income is too small to generate any further consumption. Through this multiplier process, the initial improvement in net exports would lead to an eventual increase in national income. Graphically, this increase in net exports leads to a multiplied increase of national income from Y_1 to Y_2, leading to a higher GDP growth rate.
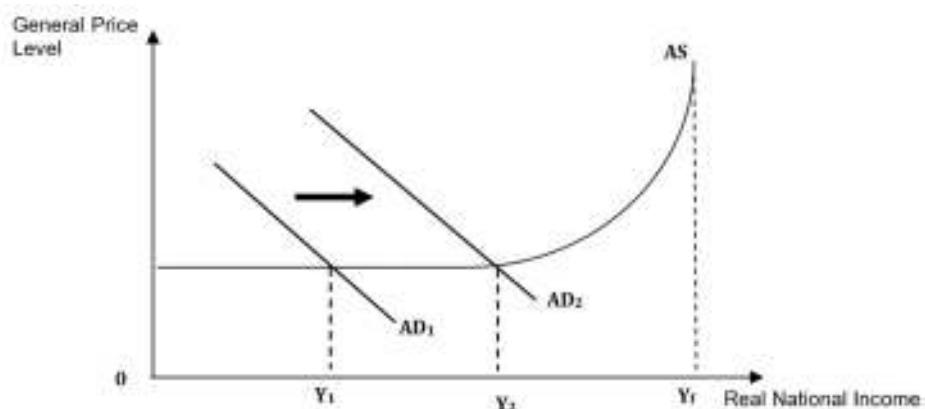

Figure 1: Balance of trade surplus increases GDP growth rate

How the government budget position influences the balance of trade position
A country, such as Singapore with budget surpluses, can better implement fiscal stimulus which aims at boosting economic activity during times of economic slowdown or recession. By increasing government spending, this increases demand for goods and services, driving economic growth and subsequently reducing unemployment. The lower unemployment and the higher economic growth generated by fiscal stimulus can lead to an increased demand for both domestically produced goods and imported products. If the increase in import expenditure driven by robust domestic demand can outpace the growth in export revenue, this potentially leads to a balance of trade deficit.

Part (b) – Question Analysis

Question Analysis Framework		Details
Approach	**Command word**	Discuss the extent -
	Start point	GDP growth rate, inflation rate and Gini coefficient
	End point	Change in an economy's SOL
Content & Context	**Content** (Scope of coverage)	GDP growth rate, inflation rate and Gini coefficient Material and non-material SOL
	Context	No specific context

Introduction

GDP growth rate, inflation rate, and the Gini coefficient are all important economic indicators used to assess changes in living standards within an economy. However, each indicator focuses on a different dimension of economic well-being, and their relevance in measuring living standards varies.

Body point 1 – GDP growth rate

GDP growth rate measures the percentage change in a country's GDP over a specific period, usually a year. A higher GDP growth rate often signifies a more vibrant economy with increased production and economic activity. This expansion can lead to a greater demand for goods and services, prompting businesses to hire more workers to meet the rising consumer demand. As companies grow and new businesses emerge, they require a larger workforce, leading to increased job opportunities for the population. More jobs mean a higher percentage of the labour force engaged in productive activities, thus reducing unemployment, and allowing households to have steady income streams. Moreover, as the economy expands, businesses generate more profits, causing companies to invest in expanding their operations. This in turn leads to increased demand for labour. The competition for labour drives up wages as companies seek to attract and retain qualified workers. Higher wages mean increased disposable income for households, allowing them to afford more and higher quality goods and services. Thus, their material standard of living improves.

Intermediate EV – Limitations of GDP growth rate in measuring SOL

However, it's important to note that while a higher GDP growth rate can contribute to improved material living standards, it doesn't provide a complete picture of the overall living standards. It primarily measures economic growth and doesn't account for factors like income distribution, environmental sustainability, social equality, and non-material aspects of living standards such as life expectancy, literacy rate, and leisure hours.

Body point 2 – Gini coefficient

The Gini coefficient is a statistical measure that quantifies the level of income or wealth inequality within a country. It ranges from 0 to 1, with 0 representing perfect equality and 1 representing perfect inequality. The Gini coefficient is directly linked to material living standards because it provides insight into how economic benefits and resources are shared among different segments of society. When the Gini coefficient is low, i.e., closer to 0, it suggests a more even distribution of income or wealth, meaning that a larger proportion of the population is benefiting from economic growth. In such a scenario, a significant number of people would have access to goods and services, like food, housing, education, healthcare, leading to a better material standard of living.

In addition, a more equal distribution of wealth can lead to increased access to opportunities such as quality education, job training, and healthcare. This can empower individuals to improve their skills, find better employment, and hence enhance their material living standards.

Intermediate EV – Limitations of Gini coefficient in measuring SOL
However, the Gini coefficient does not provide information about the absolute levels of income or wealth. A country with similar Gini coefficients during different time periods may still have vastly different living standards, depending on the overall economic conditions and the level of economic development.

Body point 3 – Inflation rate
High inflation rates, characterised by a rapid increase in the general price level of goods and services, can have detrimental effects on material living standards. As prices rise, the purchasing power of households decreases. This means that individuals can buy fewer goods and services with the same amount of money, effectively reducing their material SOL.

Intermediate EV – Limitations of inflation rate in measuring SOL
However, the inflation rate is typically calculated as a weighted average across a basket of goods and services. Households have diverse spending patterns. The impact of inflation can vary significantly depending on the composition of a person's consumption basket. For example, if someone spends a larger portion of their income on goods and services with rapidly increasing prices (e.g., healthcare and housing), their personal inflation rate might be higher than the general inflation rate, leading to a different perception of their material standard of living.

Summative Evaluation/Conclusion
In conclusion, while the GDP growth rate, inflation rate and Gini coefficient provides valuable information about material living standards, it should be used in conjunction with other indicators, such as Human Development Index which combines economic indicators (such as GDP) with non-economic indicators (such as life expectancy and literacy rate) in order to gain a comprehensive assessment of living standards in terms of economic, social, and environmental impacts.

Essay Question 5

Life in Singapore has returned to the pre-Covid normalcy. However, there is a risk of stagflation, which refers to a unique economic situation where a country experiences slow economic growth and inflation simultaneously.

(a) Explain the likely impacts of stagflation on Singapore's domestic and external economy. [10]

(b) Discuss whether supply-side policy is the most appropriate approach in addressing stagflation. [15]

Part (a) – Question Analysis

Question Analysis Framework		Details
Approach	**Command word**	Explain the likely impacts – Consequences
	Start point	Stagflation
	End point	Singapore's domestic and external economy
Content & Context	**Content** (Scope of coverage)	AD/AS Economic growth Unemployment BOT
	Context	Singapore

Introduction
Stagflation, characterised by a combination of stagnant economic growth (or even contraction) and high inflation, can have significant impacts on Singapore's domestic and external economy due to its unique economic structure and position as a small, trade-dependent nation.

Body: impact on Singapore's domestic economy
Stagflation could lead to reduced business confidence and investment uncertainty. Companies might delay or scale back investment plans due to lower demand expectations and uncertainties about future economic conditions. Additionally, when consumers experience a decline in purchasing power due to high inflation, they often respond by adjusting their spending habits. They might become more cautious about their expenses, particularly non-essential spending, thus causing consumption to fall. Given that I and C are components of aggregate demand (AD) [where AD = C + I + G + (X-M)], a fall in investment (I) and consumption expenditure (C) would lead to a fall in AD.
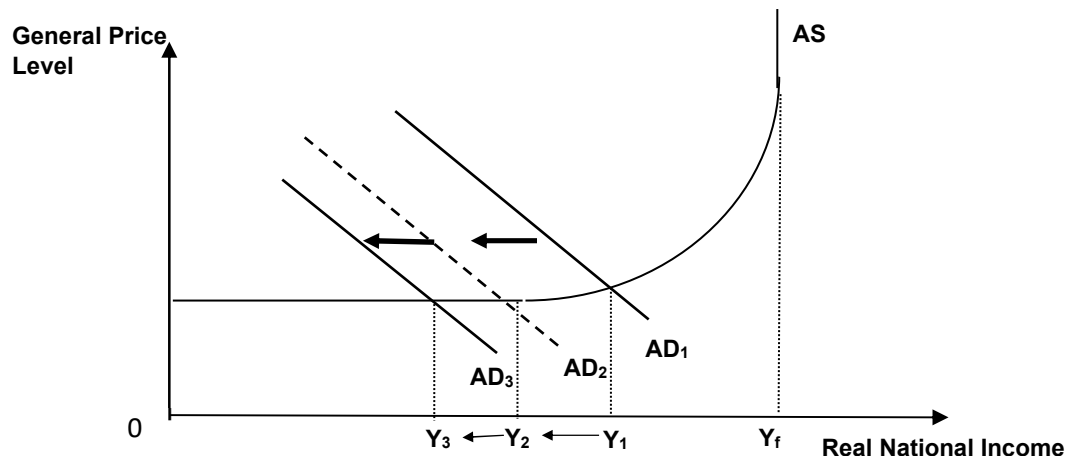
With reference to the above diagram, the initial equilibrium national income is at Y_1, where AD is equal to aggregate supply (AS). With a fall in AD from AD_1 to AD_2, firms find that they are unable to sell their current level of output, hence stocks of unsold goods accumulate. Firms will thus reduce production and decrease the derived demand for factors of production, including labour. hence leading to a rise in demand-deficient unemployment. As less labour is employed, less factor income is earned. The initial fall in national income will lead to a further fall in income-induced consumption due to the reverse multiplier effect. The economy moves into recession represented by a further fall in AD from AD_2 to AD_3, it is now at a much lower level of equilibrium national income from Y_1 to Y_3. The economy is said to be operating with spare/excess capacity or unemployed resources. When the equilibrium national income (Y_3) is below the full-employment level of national income (Y_f), the gap ($Y_f – Y_3$) represents the presence of demand-deficient unemployment.

Body: impact on Singapore's external economy

Stagflation in Singapore would cause a fall in its export price competitiveness. With a rise in export prices, quantity demanded for Singapore's exports would fall. Given that Singapore's manufactured products have many substitutes in the international market, a rise in its export prices would have led to a more than proportionate fall in quantity demanded for exports and export revenue would have fallen significantly. At the same time, the imports would become relatively cheaper and demand for imports rises, leading to a rise in import expenditure. With a fall in X and a rise in M, this would lead to a worsening balance of trade position and subsequently a balance of trade deficit assuming X=M initially.

Part (b) – Question Analysis

Question Analysis Framework		Details
Approach	**Command word**	Discuss
	Start point	SSP and one other policy
	End point	Reduce stagflation
Content & Context	**Content** (Scope of coverage)	Macroeconomic policies Stagflation
	Context	Singapore

Introduction

Stagflation is a unique challenge where an economy experiences stagnant growth (or even recession) along with high inflation rates. Addressing stagflation requires a delicate balance between managing both inflation and economic growth.

**Body: how SSP addresses stagflation**

Supply-side policies like SkillsFuture in Singapore are designed to enhance the labour productivity which would in turn influences the short run and long run aggregate supply. SkillsFuture is an initiative in Singapore that encourages individuals to upgrade their skills and knowledge through training and education programs. By improving the skill sets of the workforce, supply-side policies like SkillsFuture enhance human capital. Skilled workers are more productive and efficient, which reduces the overall cost of production, leading to an increase in SRAS from $SRAS_1$ to $SRAS_2$. The overall fall in production costs translates to an overall fall in final prices of goods and services produced and hence general price levels (downwards movement along the same AD curve) from P_1 to P_2. A lower GPL will also trigger the wealth (real balances) effect, interest rate effect and the foreign sector (international substitution) effect, hence leading to actual growth as shown below, with a rise in national income from Y_1 to Y_2.
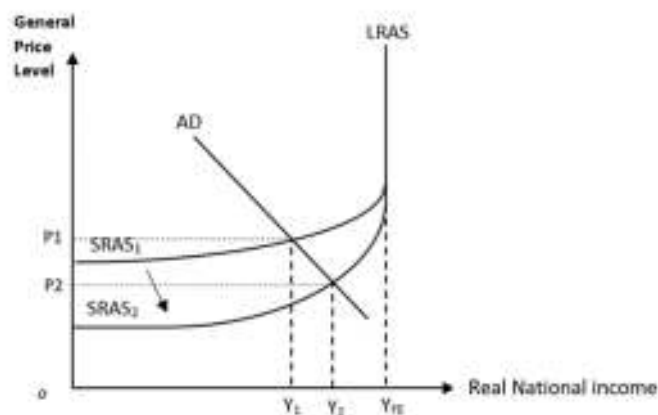
In addition, SkillsFuture can improve the productivity and quality of labour. Thus, even with the same number of workers employed, each unit of labour will now be able to produce more output per man hour. Such policy results in higher productive capacity, an increase in the amount of goods and services an economy can produce by fully utilising the factors of production. This expansion in productive capacity allows the economy to increase its LRAS from $LRAS_1$ to $LRAS_2$

as shown below. The full employment level of national income that can be attained has increased from Y_{F1} to Y_{F2}, leading to an increase in potential growth. Hence, stagflation is reduced.
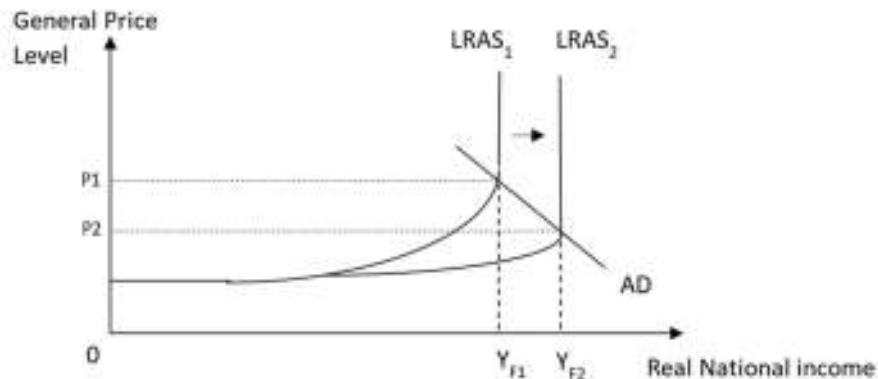

Intermediate EV: Limitation of SSP
Supply-side policies often take time to yield results. For instance, investments in education and training, research and development, and infrastructure improvements can take years to translate into increased productivity and potential growth. Stagflation requires more immediate solutions, as high inflation and unemployment can create social and economic pressures that demand swift action.

Body: how trade policies, such as FTAs address stagflation
Free Trade Agreements (FTAs) are designed to reduce or eliminate trade barriers such as tariffs, quotas, and non-tariff barriers between participating countries. By doing so, FTAs create a more favourable environment for cross-border trade. When Singapore signs an FTA with another nation or a group of nations, it gains preferential access to those markets. This means that its exporters can sell their goods and services more easily in those markets, leading to a higher demand for Singapore's exports. Hence, net exports rise. Since (X-M) is a component of aggregate demand, an increase in Singapore's net exports would lead to an increase in aggregate demand. This in turn leads to a multiple increase in real national income through the multiplier process. Hence, investing in human capital leads to actual economic growth.

Furthermore, by reducing trade barriers, FTAs can create an environment where domestic industries must become more competitive. This competitiveness can drive productivity improvements in terms of improvement in the quality of labour, leading to an increase in labour productivity and an increase in the potential output of the economy. These would mean a higher LRAS, allowing a country to enjoy a higher potential growth.
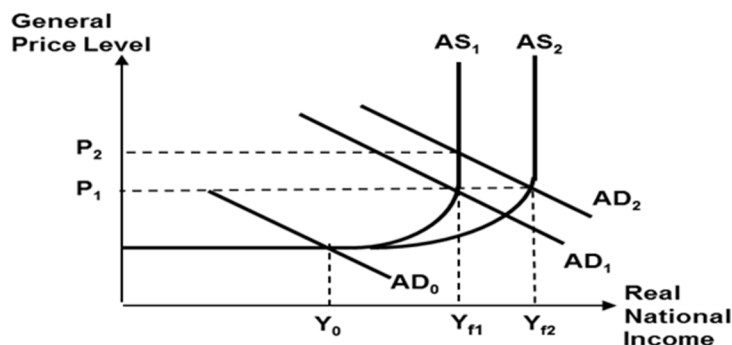
With reference to the above diagram,
- Initially, real output is at Y_0 and the economy is not operating at full employment.
- An increase in AD from AD_0 to AD_1 will raise the real output from Y_0 to Yf_1. This increase represents an actual growth.
- To address stagflation, economic growth must be sustained in the long run, there would also have to be an increase in potential output, $LRAS_1$ shifts right to $LRAS_2$, which represents potential growth.
- When LRAS shift rightwards together with the increase in AD, output is able to increase beyond Y_{f1} allowing for further actual growth as production capacity increases while reducing the rate of increase in the general price level.

Intermediate EV: Limitation of FTAs
One potential drawback of FTAs is trade diversion. This occurs when Singapore starts importing goods from an FTA partner country instead of sourcing them from a more efficient non-member country. This can happen if the FTA partner offers preferential trade terms, even though the non-member country might have been more competitive in terms of price and quality. As a result, trade diversion can lead to less efficient allocation of resources and unnecessarily increased the overall cost of imported goods.

In conclusion, a combination of both supply-side policies and FTAs could be a prudent approach to address stagflation. Successful supply-side policies can lead to lasting improvements in productivity, innovation, and competitiveness, which can have positive effects on economic growth and inflation control. Supply-side policies also prioritise domestic industries and can help in building a resilient economy that is less dependent on external factors. Simultaneously, FTAs can provide immediate relief by expanding market access, stimulating exports, and diversifying trade to address stagflation.

Essay Question 6

Regional economic cooperation networks like European Union (EU) are intended to bring about economic benefits to member countries. Against this, protectionist sentiments have also been increasing worldwide. For instance, EU has maintained tariffs against non-member countries like China.

(a)   Explain how tariffs might affect a government's ability to achieve her microeconomic objectives.   [10]

(b)   Discuss whether adopting protectionist measures or building regional economic cooperation networks is more beneficial for an economy.   [15]

Part (a) – Question Analysis

Question Analysis Framework		Details
Approach	**Command word**	Explain how – Make clear the process
	Start point	Imposition of a tariff
	End point	Impact on efficiency and equity
Content & Context	**Content** (Scope of coverage)	How tariffs work
		Impact on government's microeconomic objectives – efficiency and equity
	Context	EU tariffs against non-members like China

Introduction

A tariff is a protectionist policy designed to protect a country's self-interest such as to protect an infant industry so that once it matures, it could become an area of comparative advantage for the country. Tariffs are duties or taxes levied on imports, raising the price that domestic consumers pay for imported goods. In our analysis, we assume that the EU country that imposes the tariff is a small country e.g., Estonia whose actions cannot affect the world price of the good.

Body point 1: Explain how tariffs work
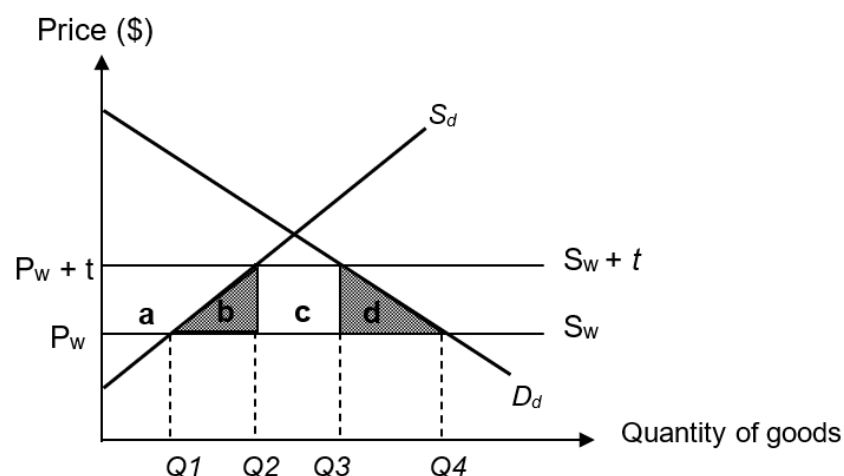
As a small country, Estonia faces a perfectly price elastic supply curve as it can purchase all it wants at the world price of Pw. Thus, the supply of imports is perfectly elastic (Sw) at the world

price of Pw. In particular, let's consider the above analysis in context of the textile (clothing) market. The domestic demand and supply curves for textiles are Dd and Sd respectively. Initially, the price of the textiles in the domestic market is equal to the world price of Pw, and the total quantity demanded is Q4 units, of which Q1 is supplied by domestic producers and Q4 – Q1 by imports. When the country imposes a tariff of t per unit of import, the world supply curve shifts to Sw + t and raises the price of the good to Sw + t.

In so doing, the following effects happen:
- the higher price of the textiles encourages domestic producers to increase production to Q2. This is the impetus for protectionism, enabling local producers to produce more.
- the higher price reduces quantity demanded from Q4 to Q3.
- the resulting shortage is now reduced from Q1Q4 to Q2Q3. This also represents the fall in imports purchased.

Body point 2: Explain impact of tariffs on efficiency
Worsens allocative efficiency
[Don't need to redraw; this diagram just adds in the blue coordinates for you to identify the points clearly]
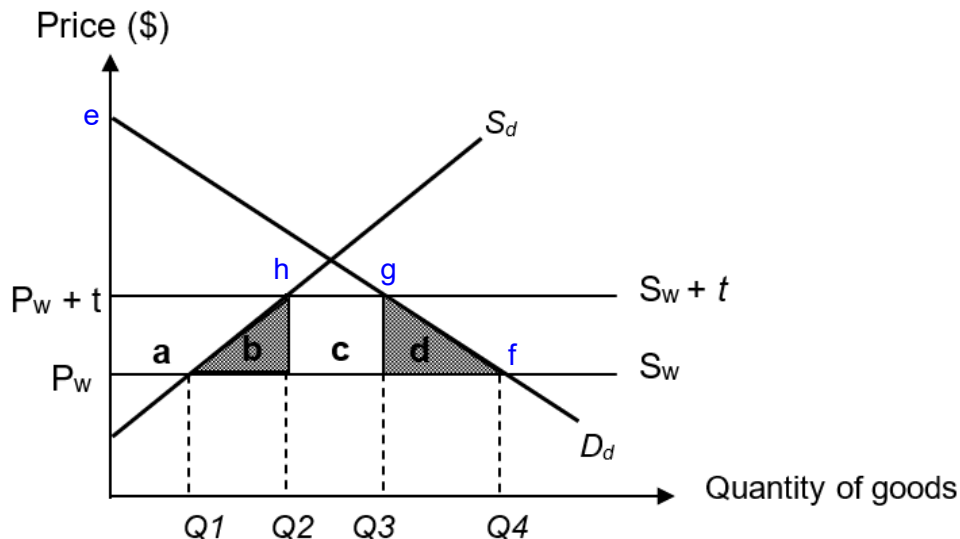
Before tariff imposition, society enjoyed maximum social welfare, given by the sum of consumer surplus and producer surplus.

Original consumer surplus: Pwef
Final consumer surplus: (Pw + t)eg
Fall in consumer surplus: areas a + b + c + d
Area a is gained by producers as producer surplus
Area c is gained by the Estonian government as tax revenue
This leaves area b and d as deadweight loss that is uncoverable by society – could have been enjoyed if tariff is not imposed.

This represents allocative inefficiency since scarce resources are now allocated in a way that makes society worse off. The relatively inefficient domestic producers could have channelled

the scarce resources to produce a good with comparative advantage, instead of producing Q1Q2 units of textiles.

Improves productive efficiency (optional point)
The tariff also makes the domestically produced goods, which are substitutes for the imported good, relatively cheaper. The quantity demanded for domestically produced goods will increase, leading to a rise in the domestic production of output. This leads to an increase in the derived demand for labour by firms and hence employment and income. A rising employment signifies a better utilisation of resources, leading to a higher productive efficiency.

<u>Body point 3: Explain impact of tariffs on equity</u>
If a tariff is imposed on an essential good such as textiles, the price is raised from Pw to Pw + t, making it more expensive for everyone. In particular, this reduces the access by low income households, making it more inequitable.

Candidates could alternatively organise points by impact on Efficiency vs impact on Equity.

Part (b) – Question Analysis

Question Analysis Framework		Details
Approach	**Command word**	Discuss whether
	Start point	Protectionism or building regional economic cooperation networks
	End point	Impact on economy
Content & Context	**Content** (Scope of coverage)	AD/AS analysis
	Context	No specific context

In organising the response, candidates should be mindful of the need to demonstrate different AD/AS shifts as well as different BUGP end points.

Body point 1: Adopting protectionist measures is beneficial for an economy
As shown in part (a), the imposition of protectionist measures like a tariff reduces the amount of import expenditure (M).
Initial import expenditure of aQ1Q4f > Final import expenditure due to tariffs of Q2Q3gh
[Also that domestic production increased from Q1 to Q2]
With this import substitution by consumption of domestically produced goods, C increases, leading to a rise in AD (assume ceteris paribus).
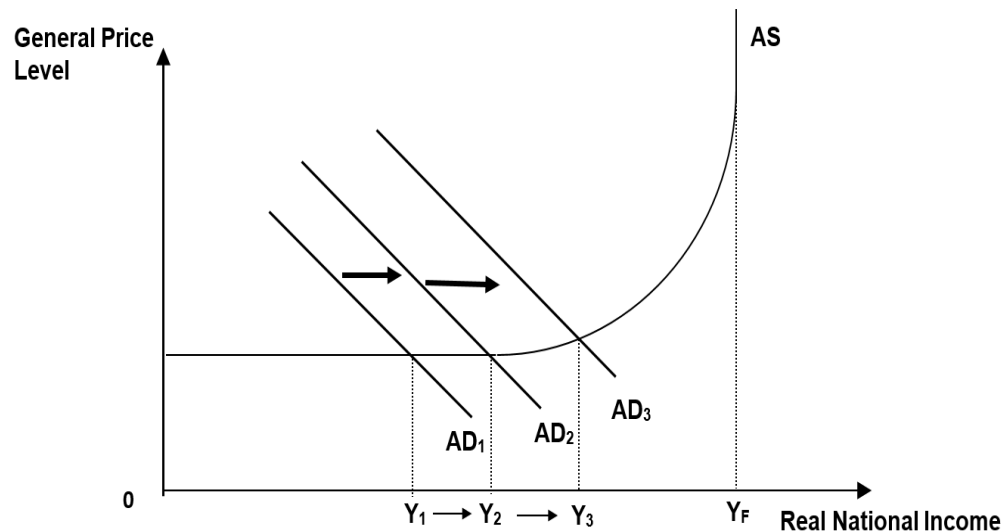
When AD increases, firms find that there is a decrease in unplanned inventories and hence increases production in the next period, assuming economy is operating below full employment level. This will in turn increase the amount of labour they employ, since labour is a form of derived demand. The rise in national income will lead to a further rise in induced consumption due to the multiplier effect. Hence real national income increases by multiples from Y_1 to Y_3, leading to actual growth as well as fall in demand-deficient unemployment.

This is beneficial to the economy since the economy is able to enjoy fuller utilisation of its resources (assuming it was initially operating at the intermediate range of AS), reducing spare capacity and move closer to its potential of Y_F.

Intermediate Evaluation

Unless the domestic country is able to gain comparative advantage in the area of textiles, the expected gains from protectionism is expected to be short-lived. Protection cannot be perpetual and other countries will also likely engage in retaliatory protectionism as well, reducing the domestic country's (X-M), AD and then leading to a fall in RNY and rise in unemployment.

Body Point 2: Building regional economic cooperation networks is beneficial for an economy

As part of the regional economic cooperation network, member countries reduce tariffs on one another. As a result, a country like Estonia will now be able to buy capital/intermediate goods from a fellow EU member Germany at a cheaper cost. Using AD-AS analysis, this is represented by a rise in SRAS since cost of production for Estonia falls.
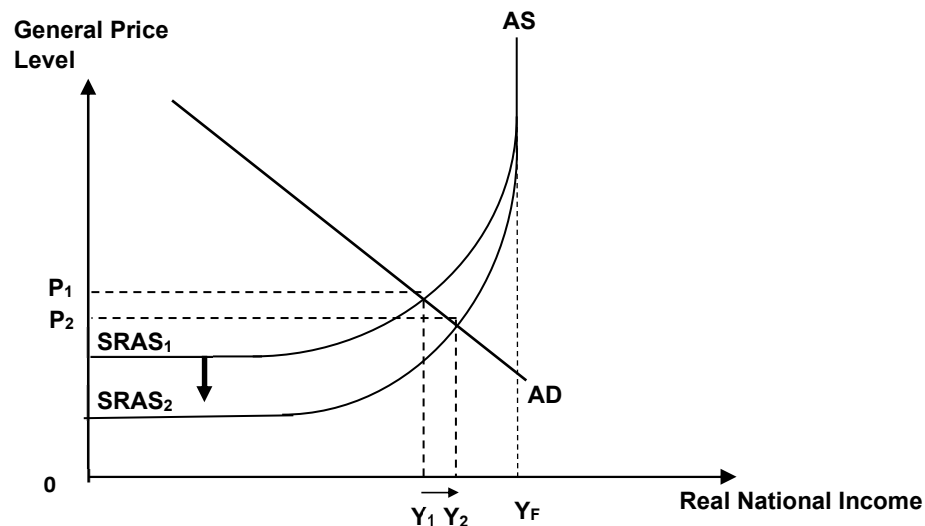
The rise in SRAS translates into lower GPL from P_1 to P_2, reducing existing cost-push pressures that might have existed due to supply constraints. This keeps inflation stable, mitigating the negative consequences of inflation such as fall in real disposable incomes and hence real purchasing power by households. Due to Wealth Effect, households feel wealthier when the real value of their assets rise. Therefore, causing them to buy more goods and services, resulting in real national income to rise from Y_1 to Y_2.

Intermediate Evaluation

However, reducing tariffs will invite more imports into the country which will then accelerate the decline of domestic industries that do not have comparative advantage. This especially so given the numerous member countries and as well diverse goods within the EU. This will lead to rising structural unemployment and the extent on livelihoods could be large if it is a significant sector. Thus, the government may need to hasten efforts to restructure the economy as well as skills upgrading efforts so that workers can transit into another sector.

Summative Evaluation/Conclusion

Judgement on the extent to which the country concerned will benefit more from either approach, depending on the nature of the economy and context it faces (i.e., for a small and open economy OR a large and less open economy).