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2017 Preliminary Examination 2
Pre-University 3

ECONOMICS **9732/01**

Paper 1: Case Study **12 September 2017**

2 hours 15 minutes

Additional Materials: Answer Paper

READ THESE INSTRUCTIONS FIRST

Write your name and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer all questions.

Begin your answer to Question 2 on a fresh sheet of writing paper.

At the end of the examination, hand in your answers to the 2 questions **separately**.

The number of marks is given in brackets [ ] at the end of each question or part question.

This question paper consists of **7** printed pages and **1** blank page.

Answer **all** questions.

Question 1

Towards a Smart Nation

Table 1: Volume of mobile data usage (% change across each year)

Year	2011	2012	2013	2014	2015	2016
%	17.64	26.14	31.97	20.66	10.21	17.29

Source: *IMDA's Annual Surveys on Infocomm Usage in Households and by Individuals*

Extract 1: Enabling digital inclusion as Singapore moves towards a Smart Nation vision

Singapore wants to be a "Smart Nation" where people live meaningful and fulfilled lives, enabled seamlessly by technology.

Singapore has a mobile penetration rate of about 155 percent. Averaged out, that is more than one mobile phone per citizen. Residential wired broadband subscriptions have also been increasing over the years, peaking at over 1.3 million subscriptions in the first quarter of this year. However, 13 percent of households are without internet access. Nine percent indicate affordability issues. The Infocomm Media Development Authority of Singapore (IMDA) has in place a slew of measures to mitigate the potential fallout of a digital divide.

For the elderly, there is the Silver Infocomm initiative. It bridges the digital divide among seniors aged 50 and above, by addressing differences in educational background, language and infocomm competencies. Since its inception in 2007, it has offered more than 95,000 training places. For needy households with school-going children, there is the Enhanced NEU PC Plus. Households are equipped with new computers or laptops with up to 75 percent subsidy, and three-year free broadband access. More than 20,000 low-income households have benefitted, since its launch in November 2006. Most recently, there was the launch of a S$10-million Digital Inclusion Fund. Part of the money will go into a Home Access programme rolled out in April this year to provide low-income households with Internet access. The bundle includes a basic computing device, for example a tablet and four years of fibre broadband connectivity, for as low as S$6 a month. Expected to benefit 8,000 households, so far only close to 300 households have tapped on the scheme. IMDA also funds programmes by organisations like the Society for the Physically Disabled (SPD).

Source: Channel NewsAsia, July 2015

Extract 2: Unlimited data means network congestion

With smartphones becoming increasingly ubiquitous, there has been a steep increase in mobile data traffic, in turn putting "a strain on the limited radio spectrum". In 2011, following M1's phasing out of its unlimited data plans, StarHub's Vice-President of Personal Solutions Joanna Chan commented: "Globally, mobile operators expect the usage of data to grow with the rising popularity of smartphones. In view of this trend, Singapore operators may have to review current pricing plans and consider introducing usage-based data pricing, to ensure that network quality for customers remains optimal."

The rest, as they say, is history. In 2012, StarHub discontinued their unlimited and 12GB data bundles. In a move which analysts labelled inevitable, the three telcos began to phase out not only unlimited data, but 12GB plans. And this certainly wasn't unique to Singapore; globally, telcos like AT&T and Verizon Wireless began to stop offering unlimited data bundles, citing network congestion as the main reason for the switch.

So in a toss-up between faster network connection and smaller data bundles, or unlimited data and a clogged network, it looks like SingTel, StarHub and M1 decided to go with the former.

Source: *Various*

Extract 3: Digital telco expands to new countries, expects to hit 4-6% of Singapore's mobile market

Mobile telco upstart Circles.Life burst into the Singapore market last May with an all-digital post-paid offering. Circles.Life claims that it is all about choice and the goal of returning power to consumers. Subscribers could sign up through the company's website, monitor their usage, and switch between different plans through the Circles.Care mobile app without having to set foot in a physical store. Most importantly, they could have an abundance of data without being tied to a two-year contract. They have the freedom to 'boost' their data cap with bite-sized data chunks (100MB, 250 MB, or 500MB) for just a few dollars. The specific segment Circles.Life is targeting is the big data-savvy segment in Singapore –made up of people ages between 20 – 45 who like to buy things online. Circles.Life's interaction with all its subscribers are all through email, social media, and live chat.

Almost a year later, the company feels good about its place in the market, having hit "100 percent of its target market." This means that Circles.Life has achieved the traction it wanted among younger, tech-savvy audiences for whom mobile data is more important than talk time and text message quotas.

CEO Rameez Ansar says the company was the first to combine all-digital services with big mobile data offerings, so the response from a data-starved market is not surprising. One of its major selling points is a system that rewards users with extra data for things like referring friends to the service, sticking with the service for enough time, and porting their number from previous carriers. There's even a gamification element, with the most active referrers grabbing the top spots in an online leaderboard. The telco also offers perks like free caller ID and WhatsApp usage.

For now, Circles.Life is on track to capture 4 to 6 percent of Singapore's mobile market in the next few years. In contrast, as of May 2016 when Circles.Life launched, Singtel had a market share of 48.1 percent, StarHub 26.7 percent, and M1 25.2 percent, according to Singapore daily *The Straits Times*. Circles.Life's smaller percentage reflects the niche audience it is targeting. Circles.Life is a virtual network that uses M1's infrastructure to offer its services, so M1 counts its subscribers as its own.

Co-founder Abhishek Gupta believes it can stand out by being asset-light. "The big challenge is we don't own the network so we can't upgrade it. So if we wanted to build a tower to get better quality WiFi, we can't do that," says Gupta. "But we have a lot of faith in the regulator and the

kind of guidelines they set to ensure good quality of service. IDA (now IMDA) regulations require telcos to meet a certain standard of quality, so that gives us a lot of comfort," he adds.

The young telco is also looking to export its model beyond Singapore. It wants to be in three to five new countries in the next three years. At the moment, it has crystallized plans to land in Indonesia and Hong Kong by end-2017.

Rameez says the company will follow the same model of partnering with a local telco to reach subscribers through its infrastructure, which helps Circles.Life keep its spending in check and be more flexible in rolling out new products.

Sources: https://e27.co, October 2016 and https://www.techinasia.com, March 2017

Questions

(a) (i) Describe the trend in the volume of mobile data usage in Table 1. [1]

(ii) Suggest a possible reason for the trend. [2]

(b) Explain why the government is intervening in the market to bridge the digital divide to achieve the Smart Nation vision. [4]

(c) (i) Define a private good. [1]

(ii) With reference to Extract 2, explain why mobile data is a private good. [2]

(d) State and justify the type of market structure that firms in the telecommunication industry in Singapore operate in. [2]

(e) Assess Circles.Life's business strategy for its long run survival. [8]

(f) Using the case material and/or your own knowledge, discuss the impact of the entry of Circles.Life on the society. [10]

[Total: 30]

Question 2

Technology and the Economy

Extract 4: What is the Fourth Industrial Revolution?

The First Industrial Revolution used water and steam power to mechanise production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. Now a Fourth Industrial Revolution is building on the Third. The Fourth Industrial Revolution includes development of digital services and robotics technology such as artificial intelligence and machine learning.

Our lives are being shaken to their very core by technological change, with the Fourth Industrial Revolution transforming economies as never before. To appreciate the changes at hand, two interrelated aspects of the economy are particularly illustrative: growth and productivity on one hand, and employment on the other.

Source: World Economic Forum, 2016

Extract 5: Is technological change creating a new global economy?

Productivity is the most important determinant of long-term growth. Yet productivity growth has stagnated around the world, particularly since the great recession. An important question is how the Fourth Industrial Revolution will drive productivity in the years to come.

In theory, the application of new technologies to existing problems should improve efficiency and thus productivity. Technological innovations tend to raise labour productivity by allowing the existing workforce to do more with less, and by replacing existing workers with technology. They also usher in new products and processes that open up new sources of growth.

However, there is much debate on the likely size of the impact of the Fourth Industrial Revolution. On one hand, some experts believe that the productivity impact of the current technological revolution is almost over. On the other hand, other experts believe that the world will soon be experiencing faster growth due to a major surge in productivity.

Perhaps there are such divergent views because the impact of technology is so difficult to measure. The Ubers and Airbnbs of the world are clearly providing efficiency and productivity gains. Yet many of the benefits of these new activities are not accounted for in the calculation of GDP in the same way that private housework and childcare are neglected.

Source: World Economic Forum, 2016

**Extract 6: What happens when robots turn white-collar?**

Throughout the ages, technology has replaced human effort, which while good for productivity growth and growth overall, is disruptive for those workers who lose their jobs.

And with the Fourth Industrial Revolution, this is no longer just about repetitive factory jobs: new computing and robotics technologies now threaten many "mid-skill" professions that had seemed "safe territory", such as accountants, taxi drivers and paralegals.

It has always been the case that technological innovation destroys some jobs and replaces them in turn with new ones, in a different activity and possibly in a different place. As technological innovation forges ahead, one can expect that low-skill activities will be progressively replaced by tasks that require creativity and social intelligence. The Fourth Industrial Revolution is different in that it is primarily middle-skilled labour that has been affected. And as the disappearance of "mid-skilled" causes the job market to become increasingly segregated into a "low-skill/pay" segment with increasing numbers of people competing for ever fewer jobs and a "high-skill/pay" segment with few highly-demanded workers, social tensions will inevitably rise.

Sources: World Economic Forum, 2016 and International Monetary Fund, 2017

Table 2: Job vacancies in Singapore by occupational group (in thousands)
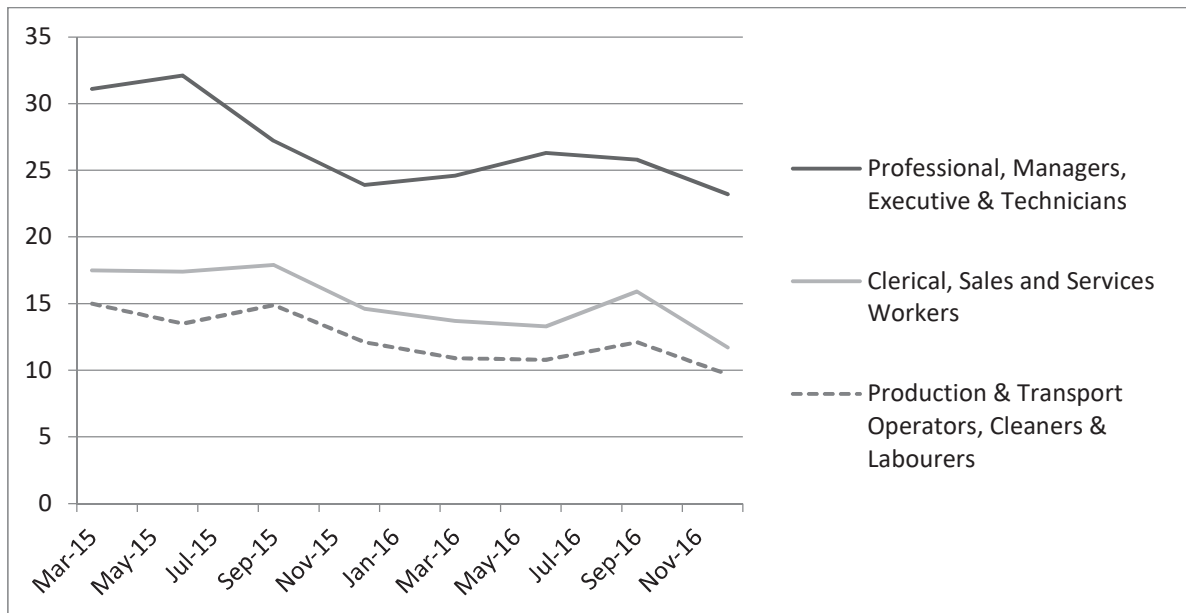
Source: Ministry of Manpower, 2017

Extract 7: Technological disruption may push up unemployment rate

Singapore's labour market faces challenging times ahead, and not just because of the slowing global economy.

The lacklustre sentiment has stunted job creation and prompted a wave of layoffs in the hardest-hit sectors, but more worrying is the prospect that an unemployment rate higher than what Singaporeans are used to might become the new normal.

Singapore's unemployment rate – which now stands at 2.1 percent – has for decades been low by international standards. But it might be on track to rise in the face of unrelenting technological change that leaves old skills outmoded. The ones relevant to new realities may take a while to acquire.

In the short run, the slowing global economy will remain a key contributor to downbeat labour market sentiment. Beyond the current downturn, however, some structural challenges will persist for a longer time – including the gulf between the skills workers have and the ones that employers want.

In its latest macroeconomic review, the Monetary Authority of Singapore said skills mismatches in the labour market are on the rise. These are leaving laid-off workers – especially professionals, managers, executives and technicians (PMET) – struggling to find new jobs, the central bank noted.

Disruptive change has hit almost every industry, and jobs are evolving faster than ever. In addition, the Singapore economy is increasingly moving towards higher value-added, niche sectors – such as medical technology and data analytics – in a bid to maintain its competitive edge. These provide good jobs, but require specialised skills that most retrenched PMETs do not have. They also offer fewer jobs, given their small, specialised nature.

This means Singapore might have to get used to a higher rate of structural unemployment – caused by a mismatch between workers' skills and those demanded by employers.

Source: The Straits Times, 2016

Questions

(a) (i)   Define labour productivity.   [1]

      (ii) Using Extract 5, explain how technological development would affect the   [2]
             production possibility curve (PPC) of an economy.

(b)   Explain the statement that "many of the benefits of these new activities   [3]
             (from technological development) are not accounted for in the calculation of
             GDP in the same way that private housework and childcare are neglected".

(c)   With reference to Extract 6, explain how the Gini coefficient is expected to   [4]
             change with technological advances.

(d) (i)   Describe the trend in job vacancies in Singapore.   [2]

      (ii) To what extent is the above trend a result of the Fourth Industrial   [8]
             Revolution?

(e)   As an economic advisor to the Singapore government, evaluate the possible   [10]
             options to reduce unemployment in Singapore.

[Total: 30]

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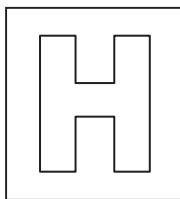
2017 Preliminary Examination 2
Pre-University 3

ECONOMICS **9732/02**

Paper 2: Essay Questions **18 September 2017**

2 hours 15 minutes

Additional Materials: Answer Paper
Cover Page

READ THESE INSTRUCTIONS FIRST

Write your name and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer three questions in total, of which one must be from Section A, one from Section B and one from either Section A or Section B.

At the end of the examination, hand in your answers to the 2 sections **separately** with the cover page on top of each section.

The number of marks is given in brackets [ ] at the end of each question or part question.

This question paper consists of **3** printed pages and **1** blank page.

Answer **three** questions in total.

Section A

One or **two** of your three chosen questions must be from this section.

1   As urban populations swell, sand has become one of the most extracted materials in the world. With extensive use in construction and industrial production, existing sand deposits are being depleted. As such, some countries have closed mines and banned exports. At the same time, prices of alternative products such as wood have fallen.

Discuss the demand and supply factors and their relative importance in determining the output of sand in the global market.   [25]

2   (a) Explain the determinants of firms' decision   on whether to merge.   [10]

(b) Assess the extent to which government intervention is needed when a firm dominates the market.   [15]

3   (a) Using examples, explain why the market fails in the case of demerit goods.   [10]

(b) Discuss whether the current policies adopted by the Singapore government to deal with demerit goods are sufficient given the changing demographics.   [15]

Section B

One or **two** of your three chosen questions must be from this section.

4   The rising cost of foreign package holidays and imported computer games helped to push the UK inflation rate up to 2.9% last month from 2.7% in April. The latest inflation rate is the highest since June 2013, and above the Bank of England's 2% target. The pick-up in inflation is likely to continue the squeeze on consumers.

The Guardian, 13 June 2017

   (a) Explain how firms and households are affected by inflation.   [10]

   (b) Discuss the alternative policies that the UK government might adopt to alleviate the inflationary pressures.   [15]

5   Discuss how far the conflicts in government macroeconomic objectives depend on the openness of the economy.   [25]

6   (a) Explain the consequences of a current account deficit and a government budget deficit.   [10]

   (b) Assess whether such deficits are more likely to be caused by external or internal factors.   [15]

End of paper

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Answers

CSQ1: Towards a Smart Nation

ai	**Describe the trend in the volume of mobile data usage in Table 1.**	**[1]**
	Mobile usage has been increasing *1m for general trend*	
aii	**Suggest a possible reason for the trend.**	**[2]**
	Possible factors to account for the increasing volume of data usage: • Fall in price of 'complements' : cheaper smartphones →quantity demanded of smartphones increased →Demand for data use increased-→increase in volume (quantity) of data usage • Increase in Income →Increase in demand for smartphones →increase in demand for data →increase in volume (quantity) of mobile data usage • More apps/services (games/work)→ demand for data increase →increase in volume (quantity) of mobile data usage • Accept possible supply factors too *1m for how factor increases demand/supply* *1m for link between demand/supply and volume (quantity) of mobile date usage* *Note: error carried forward from a(i)* *Max 1m for answers that explained change in price of good*	
b	**Explain why the government is intervening in the market to bridge the digital divide to achieve the Smart Nation vision.**	**[4]**
	• The government is intervening to correct the market failure due to inequity. • Access to internet has become a necessity that everyone should have access to regardless of income • However, left to the market forces, the people who can have access to the internet are those who are able and willing to pay for it. This means that those who are poor-those who have no or limited ability to pay for the good will not have access to the internet. • Hence, there is inequity as mentioned in Extract 1 Para 1 where 13% are without internet access OR nine percent cited affordability issues *1m for identifying the source of market failure as inequity* *1m for recognising that access to the internet is a service that all should have access to* *1m for explaining how the market would result in the poor not having access to the internet* *1m for appropriate reference to the case material* *Max 2m for other possible sources of market failure or for macroeconomic reasons, e.g. SOL.* *Note: Marks are awarded for only 1 source of market failure. For students that explained 2 sources, marks are given based on the higher scoring market failure explanation.*	
ci	**Define a private good.**	**[1]**
	A private good is excludable (one will be excluded from the one if one does not pay for it), and rivalrous (consumption by one deprives another of consuming it) *1m for stating <u>both</u> the characteristics of excludability and rivalry* *Note for markers: 0m if one characteristic is inaccurate or missing.*	
cii	**With reference to Extract 2, explain why mobile data is a private good.**	**[2]**
	Mobile data is excludable –if one does not subscribe to the data plan, one will be excluded	

|			
		from using it. Using the data is rivalrous – more people using the data at any one time leads to data congestion and slower speed. *1m for showing how mobile data is excludable* *1m for showing how mobile data is rivalrous*	
d		**State and justify the type of market structure that firms in the telecommunication industry in Singapore operate in.**	**[2]**
		It is an oligopoly since there are only 4 large firms in the market *1m for stating the correct market structure* *1m for accurate justification*	
e		**Assess Circles.Life's business strategy for its long run survival.**	**[8]**
		Applying the 3C approach to the question *Command word = "Assess" → 2 sided answer is needed with evaluation* *Content = "Circles' Life's business strategy for its long run survival" → 2 sides are how the strategies would give rise to at least normal profit in the LR and the limitations of the strategies* *Context = Circles.Life → strategies must be those used by Circles.Life in the case material* Introduction Profits = Total Revenue (TR) minus Total Cost (TC). To survive in the long run, firms must make at least normal profits where TR=TC. Circles.Life's business strategies for reducing/minimising TC: • Being asset light by partnering local firm to tap on existing infrastructure →reduce need for physical infrastructure →reduce need for heavy start-up costs (fixed costs)→lower TC → more likely to make at least normal profits • **Limitation:** Circles.Life would need to pay M1 to tap on its infrastructure. This cost incurred could increase over the long run depending on whether M1 finds it profitable to charge more. • Since consumer sign up is done through the company's website and changes to the data plan and billings are done through the Circles.Care mobile app, there is no need for a physical retail space for providing service → no need to pay for rental etc lower TC → more likely to make at least normal profits • **Limitation:** The lack of a personal touch could be at the expense of brand loyalty as some consumers prefer to be served by staff. Lower brand loyalty could mean that demand for Circles.Life's services may fall in the future when other telcos adopt non-price competition strategies to lure Circles.Life's customers away. Circles.Life's business strategies for increasing/maximising TR: • Product differentiation - Circles.Life's plans are flexible, unlike the other telcos'. By offering a different product, Circles.Life is targetting people who like flexibility (to change and manage their plans) whose needs are currently not served by the existing Telcos. This increases the demand for Circles.Life's products as the consumers are lured over. Additionally, this difference in flexibility allows Circles.Life to stand out from the rest, making the PED for Circles.Life products less price elastic. The increase in demand and lowering of PED allows Circles.Life to increase both price and quantity and collect more revenue. With more revenue, it is more likely to make at least normal profit in the long run. • **Limitation:** Allowing for the flexibility may also add to total costs as billing details would need to be updated more frequently and more manpower may be required to check that the billing is error-free. • Additionally, Circles.Life is targeting a niche market –those who use a lot of data (e.g., people who watch videos or shop online compulsively). For this market, the PED of data is <1 as data is a necessity. So, Circles.Life could charge a higher price per unit of data and suffer a less than proportionate decrease in quantity demanded, increasing the total revenue. With more revenue, it is more likely to make at least normal profit in the long run.	

| | | • **Limitation:** In the long run, it is likely that this niche market will become the mainstream market and other telcos would start targeting them too. When that happens, Circles.Life would see a fall in demand and hence TR instead.

Conclusion (evaluation)
In the long run, firms who are not able to cover their costs will have to shut down. In this case, much also depends on whether the kind of partnership Circles.Life currently has can be sustained in the long run. For eg, would the partnership still survive should be there changes in the partnership terms over time? Additionally, this current model of being asset light and tapping on MI for its infrastructure may be limited by the partner's state of infrastructure (Extract 3, Para 5, *" The big challenge is we don't own the network so we can't upgrade it. So if we wanted to build a tower to get better quality WiFi, we can't do that."*). So even if Circles.Life is able to increase its market share, that market share may be limited by the standard/state of the partner's infrastructure. Within Singapore, the regulatory body (IMDA) has effective guidelines of service standards which would safeguard Circles.Life's interest. However, this may not necessarily be the case in the other countries that Circles.Life wants to expand to. | |

Level	Descriptor	Marks
L2	Recognition that long run survival means making at least normal profits in the long run. Well-developed explanations of Circles.Life's strategies (at least two) in terms of how they increase profits and their limitations. Strategies should include cost-minimising and revenue-maximising ones. Maximum 4 marks for cost OR revenue considerations only. Maximum 4 marks for explanation of strategies without explanation of their limitations	4-6
L1	Recognition that long run survival means making at least normal profits in the long run. Under-developed explanations of Circles.Life's strategies in terms of how they increase profits.	1-3
E1	Judgement of the business strategies for long run survival	1-2

f	**Using the case material and/or your own knowledge, discuss the impact of the entry of Circles.Life on the society.**	**[10]**
	Applying the 3C approach to the question *Command word = "Assess" → 2 sided answer is needed with evaluation* *Content = "the impact of Circles Life on the society" → positive and negative impacts on the society (consumers, producers and the society as a whole)* *Context = mobile data sector* Introduction The effect on society can be analysed in terms of the effect on allocative efficiency, productive efficiency, dynamic efficiency, equity, and choice. The entry of Circles.Life would reduce allocative inefficiency The entry of Circles.Life would reduce allocative inefficiency in two ways. First, since there is now more competition in the market, the demand for each of the existing telcos would fall and become more price elastic. The telcos would then have to reduce prices. This would narrow the gap between P and MC (P_0MC_0 to P_1MC_1), reducing the degree of allocative inefficiency.	

P

MC

P_0

MC_0
P_1
MC_1

MR₁ MR₀

D_1–AR_1 D_0=AR_0

Q_1 Q_2 q
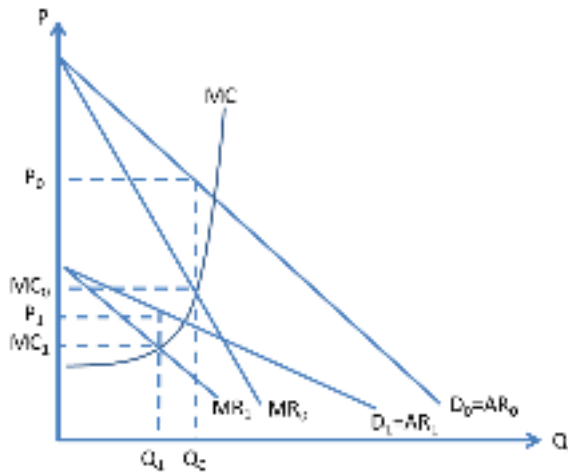
Second, Circles.Life's own pricing is flexible. Consumers buy data in smaller chunks and can choose to only add on more data when the need arises. Hence, the quantity of data provided would be closer to the 'right' amount (desired by consumers). There would be less allocative inefficiency and less deadweight loss.

The entry of Circles.Life could reduce or improve productive inefficiency
The entry of Circles.Life could reduce productive inefficiency in two ways. The increased competition in the telecommunications market would force the telcos to cut out wasteful processes, reducing X-inefficiency.
Additionally, since Circles.Life is tapping on M1's infrastructure, there is better utilization of its existing infrastructure, which also reduces productive inefficiency.
However, if Circles.Life attracts customers from the other telcos, they would then be providing services to a smaller number of people. As such, there could be underutilisation of the other telcos' infrastructure.

The entry of Circles.Life could improve or worsen dynamic efficiency
However, the effect of Circles.Life on dynamic efficiency is unclear. While increased competition would give firms in the telecommunications industry more incentive to improve their processes and offer better quality services, the erosion of profits due to the competition would reduce the ability of firms to do so.

The entry of Circles.Life would reduce inequity
The entry of Circles.Life would reduce inequity in two ways.
First, if the increased competition from Circles.Life's entry causes other telcos to reduce their prices, then inequity would be reduced since now more people would be able to afford data plans.
Also, Circles.Life's own pricing could reduce inequity. Since Circles.Life does not contract plans and allows customers to add what they need above a base plan, those who were previously unable to afford contract plans and hence had no or limited access to mobile data now have 'more affordable' access to mobile data. This brings about more equity.

The entry of Circles.Life would increase choice
Consumers now have more choice with the entry of Circle Life as they could choose from 4 instead of 3 telcos. Circles.Life also offers choice as subscribers are not tied down to a contract plan. Instead subscribers can add on more data themselves, giving rise to more options for consumers.

Conclusion (evaluation):
In conclusion, while there seems to mainly be positive effects (with the main benefit likely to be more choice), the impact may not be felt throughout society as Circles.Life targets a niche market – identified as those between 20-45 years who like to buy things online. Hence, the benefits from other telcos charging lower prices due to the increase in competition may be limited since Circles.Life is not directly competing with the other telcos. Additionally, the direct effects of Circles.Life's product offerings may also be limited since

only it only serves about 4-6% of the market. Hence, in the short run, the net benefit is likely to be small. In the long run, however, if Circles.Life grows to be a viable rival to the other telcos, then the effects of competition would be greater and there would likely be larger effects.

Alternative approach of looking at positive and negative effects on consumers, producers, and society respectively is also accepted.

Level	Descriptor	Marks
L3	Well-explained positive and negative effects of presence of Circles Life. Explanations make good reference to the case material.	6-8
L2	Under-developed explanations of positive and negative impacts of Circles.Life with some reference to case evidence. Maximum 4 marks if only positive or negative impact is analysed.	4-5
L1	Descriptive answer with limited economic analysis.	1-3
E2	Judgement of the net effect with clear justification	2
E1	Judgement of the net effect with limited justification	1

ai)	**Define labour productivity.**	[1]
	Labour productivity is the average amount of output each unit of labour can produce [1]	
aii)	**Using Extract 5, explain how technological development would affect the production possibility curve (PPC) of an economy.**	[2]
	Technological development would improve labour productivity through making labour more efficient or redundant [1] This would increase the productive capacity of an economy and shift the PPC outwards [1]	
b)	**Explain the statement that "many of the benefits of these new activities (from technological development) are not accounted for in the calculation of GDP in the same way that private housework and childcare are neglected".**	[3]
	GDP is the value of the final goods and services produced within the geographical boundary of a country within a year [1] Private housework and childcare tend not to be included in the GDP as they are goods that are not transacted in the market [1] Many of the benefits of technological improvements (e.g. rental services by airbnb and Uber) are similarly not captured as they are not formally traded in a market. [1] 1m – Definition of GDP 1m – Accurate explanation of why housework and childcare are not captured in the GDP (i.e. non-market goods & services) 1m – Accurate application of why the new activities are not captured by the GDP (i.e. non-market goods & services)	
c)	**With reference to Extract 6, explain how the Gini coefficient is expected to change with technological advances.**	[4]
	Technological advances described in Extract 6 have caused middle skilled labour to be replaced This causes the supply of low-skilled labour to increase as mid-skilled labour can only enter the low-skilled labour market since they do not own the skills necessary in the high-skilled labour market [1] Technological advances will also increase the demand for high-skilled labour as they are better able to make use of technology to be more productive [1] The rise in supply of low skilled labour would reduce the wages of low-skilled labour while the rise in demand for high skilled labour would increase the wages of the high-skilled. [1] Hence, there would be larger income inequality and the Gini coefficient would increase. [1] 1m – Explanation of D and/or S factor for low-skilled labour 1m – Explanation of D and/or S factor for high-skilled labour 1m – Accurate application of changes in D and S to explain changes in wages for high- and low-skilled labour 1m – Accurate link to change in Gini coefficient (more unequal = higher Gini coefficient)	
di)	**Describe the trend in job vacancies in Singapore**	[2]
	General trend – General decrease [1] Refinement – Decrease was larger for PMETs than other occupations [1]	
dii)	**To what extent is the above trend a result of the Fourth Industrial Revolution**	[8]
	Command = 'To what extent' = requires two-sided answer with evaluative conclusion *Content = "is the above trend a result of the Fourth Industrial Revolution" = the two sides are "above trend is a result of the Fourth Industrial Revolution" versus "above trend is not a result of the Fourth Industrial Revolution"* *Context = trend from (di) which shows a general decrease in job vacancies with the decrease in vacancies for PMETs being the sharpest*	

	Introduction: Fourth industrial revolution is the technological change that includes the development of digital services and robotics technology such as artificial intelligence and machine learning (Ext 1).	
	Thesis: Trend is a result of the Fourth	Anti-thesis: Trend is not a result of the

Industrial Revolution	Fourth Industrial Revolution
• Trend of general decreasing vacancies can be a result of the Fourth Industrial Revolution. With the development of technology that replaces labour, there will be lower demand for labour. This means that there will be fewer vacancies (smaller shortage of labour). • The sharpest fall in vacancies in PMET vacancies can also be explained by the Fourth Industrial revolution. The Fourth Industrial Revolution has resulted in the sharpest fall in demand for mid-skilled labour (Ext 3). This corresponds to the fall in vacancies for PMETs being the sharpest since PMETs are mid-skill labourers.	• However, the trend of a general decrease may be due to global slowdown instead (Ext 4). The global slowdown would mean that foreign consumers would purchase fewer of Sg's X. Also, foreign firms would be more pessimistic causing less FDI inflows into Sg. Fall in X and I → fall in AD → lower national output → lower demand for workers (fewer vacancies) • Additionally, a reduction in vacancies may not reflect a fall in demand for workers. It might be due to the vacancies being filled up faster than they are being created

Conclusion: While the fourth industrial revolution probably is a contributing factor to the fall in vacancies, it is unlikely to be the only factor since the period clearly contributes to a global slowdown. To determine the extent to which it caused the fall in vacancies, more information such as the profile of job applicants (to identify if there is a skill mismatch) and the GDP growth rate (to identify how deep the recession is) would be needed.

Level	Descriptor	Marks
L2	Well explained thesis and anti-thesis; explanations show how the trend observed may and may not be the result of the fourth industrial revolution. Explanations make good use of economic analyses.	4-6
L1	Well explained thesis OR anti-thesis; explanations show how the trend observed may OR may not be the result of the fourth industrial revolution. OR Insufficiently explained thesis and anti-thesis; explanations show how the trend observed may and may not be the result of the fourth industrial revolution but did not make good use of economic analyses.	1-3
E	Makes a reasoned conclusion regarding the extent to which the Fourth Industrial Revolution caused the observed trend.	1-2

e)	**As an economic advisor to the Singapore government, evaluate the possible options to reduce unemployment in Singapore.**	[10]
	Command = 'Evaluate' = requires two-sided answer with evaluative conclusion *Content = "the possible options to increase employment" = the two sides are the policies to increase employment and their limitations* *Context = "in Singapore"*	

Introduction: Current situation in Singapore is that structural and demand deficient unemployment are expected to increase (Ext 4)	
Policy option	Limitation
• To reduce structural unemployment, **subsidise re-training schemes** so that workers can pick up skills that	• Retraining takes time, and this is a problem especially if jobs are evolving faster. Workers may find

are relevant to the industry (e.g. skillsfuture). Reduction in skills mismatch → reduction in structural unemployment	that by the time they pick up the new skills, the jobs they are trained for have evolved yet again.
	• The new jobs are more specialised and not many of these may be created. Not everyone who gets retrained will get a new job.
• To reduce demand deficient unemployment, **expansionary FP can be used**. Increase in G → increase AD. Reduction in Y and corp taxes → increase in disp Y and after tax profits for firms → increase in C and I → increase in AD. Increase in AD → increase in NY via the k process. Increased NY (national output) → increased demand for labour → reduction in demand-deficient unemployment	• Sg has a small multiplier due to the high MPW due to high MPS from having a compulsory saving scheme (CPF) and high MPM from being dependent on imports. A small multiplier would mean that the increase in national output would be limited and hence the reduction in demand-deficient unemployment would be limited too. • Additionally, given the gloomy economy, the reductions in taxes would likely to stimulate only small increase in C and I, causing the final reduction on demand deficient unemployment to be limited.
• To reduce demand deficient unemployment, **a depreciation of the exchange rate can be used**. Depreciation → reduction in Px and increase in Pm → rise in Qx and fall in Qm → assuming MLC holds, (X-M) increases → increase in AD → increase in NY via the k process. Increased NY (national output) → increased demand for labour → reduction in demand-deficient unemployment	• Effect may be limited as Sg is dependent on imported raw materials and components. Increased Pm → increased COP → Px would not fall by the full extent of the depreciation → limited effect on X-M and hence limited effect on AD, NY, and unemployment. • Given a slowing global economy, depreciation may be seen as a protectionist measure and foreign countries may retaliate by imposing tariffs on Sg's X instead. Fall in X → fall in AD → NY → rise in demand deficient unemployment

Conclusion:
Each option has its limitations and a combination of policies may be the best way forward for Singapore as the policies could be complementary. Re-training and expansionary fiscal could be complementary as subsidising re-training could be a form of government expenditure. Additionally, the two could be complementary as they target different types of unemployment. Expansionary fiscal policy and depreciation could be complementary as using them simultaneously would mean that the currency would not need to be depreciated as much, which would reduce the risk of retaliation.

Level	Descriptor	Marks
L3	Well explained policies (at least 2) and limitations of policies that Singapore can adopt to reduce unemployment. Choice of policies are relevant to Singapore (i/r policy is not accepted) and show understanding of case material (policies should address structural and demand deficient unemployment, which were the sources of unemployment in Singapore identified in Ext 4. Policies to reduce frictional unemployment can only be given partial credit). Explanations make good use of economics analyses.	7-8
L2	One well explained policy and limitations of the policy that Singapore	4-6

can adopt to reduce unemployment. Choice of policies are relevant to Singapore (i/r policy is not accepted) and show understanding of case material (policy should address structural and demand deficient unemployment, which were the sources of unemployment in Singapore identified in Ext 4. Policy to reduce frictional unemployment can only be given partial credit). Explanations make good use of economics analyses.

OR

Well explained policies (at least 2) and limitations of policies that Singapore can adopt to reduce unemployment. Choice of policies are relevant to Singapore (i/r policy is not accepted) and show understanding of case material (policies should address structural and demand deficient unemployment, which were the sources of unemployment in Singapore identified in Ext 4. Policies to reduce frictional unemployment can only be given partial credit). However, explanations make insufficient use of economics analyses.

Well-explained policies without explanations of limitations to be capped at 4.

| L1 | Only explained one relevant policy | 1-3 |
| E | Makes an evaluative conclusion regarding what Singapore should do to reduce unemployment | 1-2 |

Answers

1) As urban populations swell, sand has become one of the most extracted materials in the world. With extensive use in construction and industrial production, existing sand deposits are being depleted. As such, some countries have closed mines and banned exports. At the same time, prices of alternative products such as wood have fallen.

Discuss the demand and supply factors and their relative importance in determining the output of sand in the global market. [25]

Applying the 3Cs:
Command = 'Discuss' → Need 2-sided answer and an evaluative conclusion
Content = relative importance of demand and supply factors in determining output of sand → output of sand could have increased or decreased; relative importance depends on elasticity concepts and extent of shifts
Context = global sand market

Introduction

Demand and supply factors determine the output of sand, which refers to the quantity of sand produced in the global market. The demand factors include the increase in urban populations and the fall in price of wood, while the supply factors are excessive mining, closure of mines and export bans. The relative importance of these factors in determining output can be discussed in terms of elasticity concepts such as PED, XED and PES, as well as extent of shifts in demand and supply.

Body

1. Extent to which demand factors increases the output (quantity) of sand (application of XED and PES)

- **DD for sand increases due to an increase in urban populations**
There has been a significant increase in urban populations, especially in countries like China. This means that there will be a corresponding increase in demand for construction and industrial products to build and develop cities for housing and businesses. This results in an increase in derived demand for sand, as sand is an essential factor in the production of these goods. Hence with an increase in demand for sand, demand curve shifts to the right and output increases.

- **DD for sand decreases due to a fall in the price of substitutes**
Wood is a substitute for sand in the construction of buildings. As the price of wood falls, the quantity demanded of wood rises, and this decreases the demand for sand as buyers switch from sand to wood, which is relatively cheaper. As such, the demand curve for sand shifts to the left, and output of sand decreases.

- **Using XED to determine which demand factor is more important in determining the output of sand**
Cross elasticity of demand measures the degree of responsiveness of demand for good A to a change in price of good B, ceteris paribus. Wood and sand are not close substitutes. While wood can replace sand in some types of construction, sand is still needed industrially to make glass, electronics, and to extract oil in the fracking industry. Hence the XED value is positive and less than 1. This means that the fall in the price of wood would lead to a less than proportionate fall in demand for sand.

Thus, it is likely that demand for sand still increases as **the first demand factor (rise in urban populations) is more important than the second demand factor (fall in price of wood)**. Overall, the net effect of the above changes in demand factors means that there is a smaller rightward shift of the demand curve, D0 to D1, instead of D0 to D2, which results in a smaller increase in price and quantity. Price and quantity increases from P0 to P1 and Q0 to Q1 respectively.
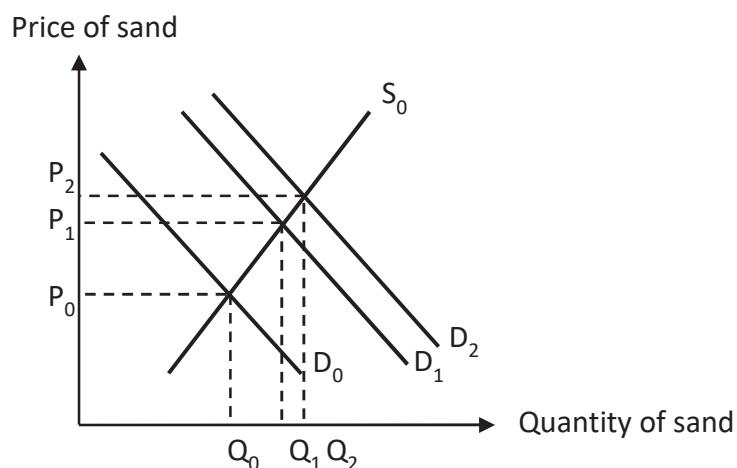
Figure 1: Increase in demand for sand

- **Using PES to assess impact on output of sand**

Price elasticity of supply measures the degree of responsiveness of quantity supplied of a good to a change in its price, ceteris paribus. As existing sand deposits are being depleted, stocks are low and firms are unable to respond quickly to a change in price. In addition, government regulations such as the closure of mines also reduce factor mobility and limit the ability of firms to increase quantity supplied in response to an increase in price. Hence supply of sand is price inelastic.

Given the increase in demand explained earlier, there will be a corresponding increase in price. As PES is less than one, an increase in price from P0 to P1 leads to a less than proportionate increase in quantity supplied from Q0 to Q1. Hence, demand factors do not seem to be very important in explaining the increase in output of sand.
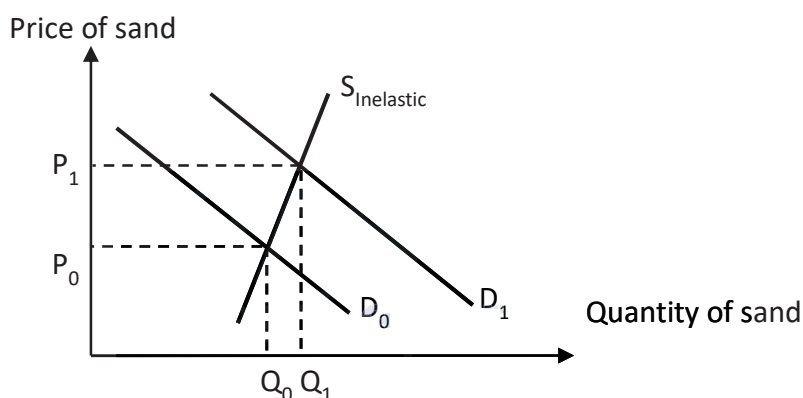
Figure 2: Increase in demand for sand given price inelastic supply

2. <u>Extent to which supply factor increases the output (quantity) of sand (application of PED)</u>
- **SS of sand decreases due to excessive mining, closure of mines and export bans**

According to the preamble, sand deposits are being depleted as a result of excessive mining. Furthermore, the environment damage incurred has prompted some governments to close mines and impose export bans. As a result, supply of sand in the global market decreases. Supply curve shifts to the left and output of sand falls.

- **Using PED to assess impact on output of sand**

Price elasticity of demand measures the degree of responsiveness of quantity demanded of a good to a change in its price, ceteris paribus. In the short run, there are very few substitutes for sand that are available. Also, time is required to search for or develop substitutes. Given a change in the price of sand, buyers are unable to switch to substitutes easily. Hence demand for sand is price inelastic in the short run.
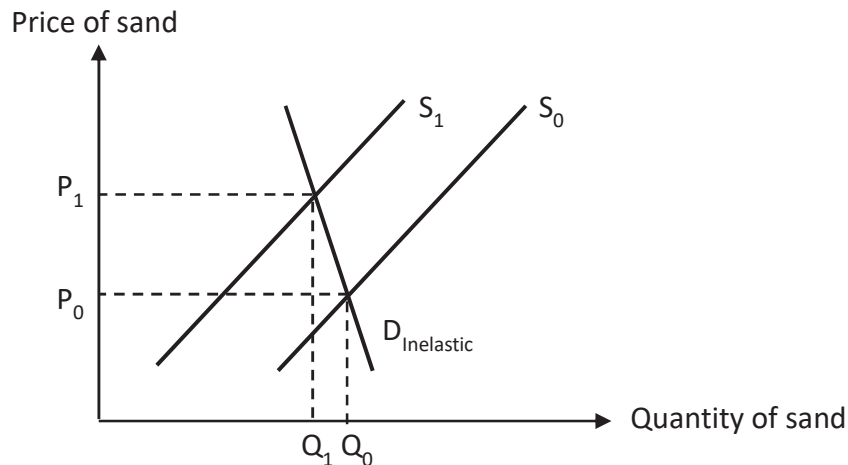
Figure 3: Decrease in supply of sand given price inelastic demand

Given the decrease in supply explained earlier, price of sand would increase. As PED is less than one, an increase in price from P0 to P1 leads to a less than proportionate decrease in quantity demanded from Q0 to Q1.

3. Relative importance of demand and supply factors using extent of shifts

Given the simultaneous rise in demand and fall in supply of sand, the overall effect on output would depend on the extent of shifts in demand and supply. It can be assumed that the rise in demand exceeds the fall in supply due to the substantial growth in urban development worldwide with only a fall in supply of sand from a few countries at present. This means that the **demand factor is more important** and its shift outweighs the shift in supply.
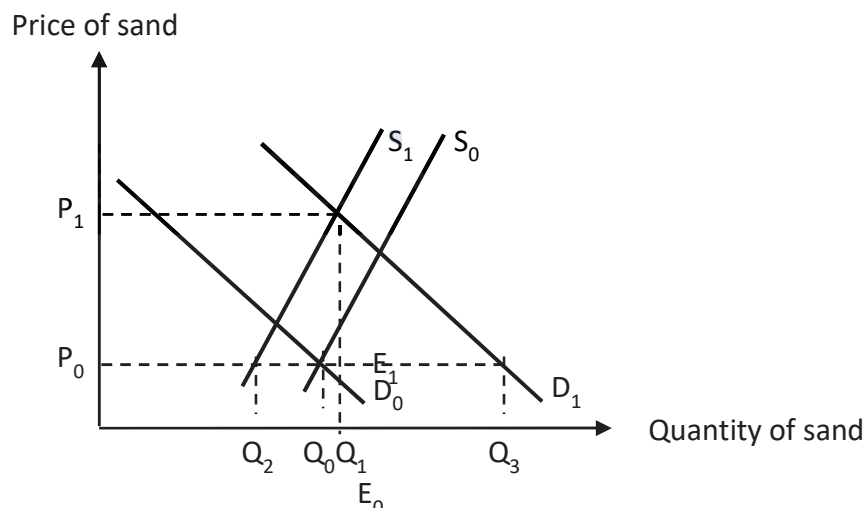
Figure 4: Simultaneous shifts in demand and supply

At the original price P0, quantity demanded Q3 exceeds quantity supplied Q2, leading to a shortage of Q2Q3, which puts upward pressure on prices. As prices rise, quantity demanded falls along D1 while quantity supplied increases along S1. This happens until the new equilibrium is reached at E1, where there is no tendency for further change. Overall, equilibrium price increases from P0 to P1 and equilibrium quantity rises from Q0 to Q1.

If the assumption above does not hold, and the supply shift outweighs the demand shift, equilibrium price would rise and equilibrium quantity would fall instead.

Demand and supply factors that are not included in the preamble can be accepted. Reasonable analyses based on different elasticity values and extent of shifts accurately justified will be accepted.

Conclusion and evaluation

In conclusion, demand factors are likely to be more important than supply factors in determining the output of sand in the global market, leading to an overall increase in output. Among the demand factors, the increase in urban populations seems to be permanent and larger in magnitude compared to the change in price of wood. However, the above analyses only hold if the assumptions about the various elasticity values and extent of shifts in demand and supply are true. In the long run, such assumptions may not hold and output of sand could eventually fall. With a longer time period, suitable substitutes for sand can be discovered or developed. As such, buyers of sand can switch to other substitutes more easily, and demand will be more price elastic. In addition, the availability of close substitutes would also mean that cross elasticity of demand could become elastic. This implies that output of sand may fall in the long term.

Level	Descriptor	Marks
3	**High L3 (20-21m):** Answer discusses the relative importance of demand and supply factors using <u>all three</u> elasticity concepts accurately and rigorously. **Low L3 (17-19m):** Answer discusses the relative importance of demand and supply factors using <u>all three</u> elasticity concepts with very minor gaps or errors in explanations.	17-21
2	**High L2 (14-16m):** Answer discusses the relative importance of demand and supply factors using <u>at least two</u> elasticity concepts accurately and rigorously. **Low L2 (10-13m):** Answer discusses the relative importance of demand and supply factors using <u>at least one</u> elasticity concept accurately and rigorously.	10-16
1	**High L1 (6-9m):** Explanations of demand <u>and</u> supply factors with some mention of extent of shifts <u>and/or</u> elasticity concepts with insufficient rigour. OR	1-9

	Answer is <u>1-sided</u> and discusses only demand <u>or</u> supply factors. Use of elasticity concepts in the explanations is accurate. **Low L1 (1-5m):** Explanations of demand and supply factors <u>only</u>. Answer is descriptive and/or contains significant errors in analysis.	
E2	Provides reasoned conclusions on the relative importance of demand and supply factors and hence the net effect on output. Reasoning is sound and insightful.	3-4
E1	Provides reasoned conclusions on the relative importance of demand and supply factors and hence the net effect on output. Reasoning is sound but not sufficiently insightful.	1-2

2 a) Explain the determinants of firms' decision on whether to merge. [10]

Introduction

Firms are assumed to be profit-maximisers who aim to maximise revenue and minimise costs. In making the decision whether to merge, firms would consider the benefits and costs of doing so. The benefits of a merger include gaining more market power and reaping internal economies of scale (EOS), which would increase revenue and decrease costs. On the other hand, diseconomies of scale (DOS) could set in with a merger and firms might face higher costs.

A merger is the combination of two companies to form a larger company, which enables firms to grow in size. Different types of mergers include:

- horizontal mergers, where firms in the same industry and stage of production merge (e.g. Scoot and Tigerair merged in 2017);
- vertical mergers, where two firms in the same industry but at different stages of production merge (e.g. a car manufacturer merging with a steel manufacturer); or
- conglomerate mergers, where firms in different industries merge to form one company (e.g. Keppel Corporation consists of businesses associated with the marine, property and infrastructure sectors).

Body

1. Benefits of merger

- **Monopoly motive**

When firms merge, their market share increases and demand for their products rise, allowing them to earn higher revenue. This is especially true for horizontal mergers between companies in the same industry and stage of production. For instance, the merger between Scoot and Tigerair in 2017 enables the airline to have a wider travel network of 65 destinations across 18 countries. This includes new destinations such as long-haul flights to Hawaii in the US, which is likely to increase demand for its flights.

The increase in market share also tends to reduce competition and the number of substitutes available, causing demand for the firm's products to become less price elastic. If demand becomes price inelastic, firms could raise its price to increase total revenue, as quantity demanded for its good would decrease less than proportionately to the rise in price. This leads to higher profits as firms gain greater market power and control a larger proportion of total market supply.

At the same time, reduced competition would decrease the need for advertising to compete against rivals and attract customers. This also decreases costs for firms.

- **Reap greater internal economies of scale**

Besides revenue benefits, firms could also reap cost benefits from mergers by exploiting internal EOS. Internal economies of scale (IEOS) are the cost savings a firm experiences as it increases its scale of production. As the scale of production increases, the long run average cost will fall.

There are different types of IEOS that firms can enjoy when they expand their scale of operation. *Students are only required to explain one type of IEOS in detail.*

- o Firms can reap technical EOS. With specialisation and division of labour, the efficiency of labour can increase, thus resulting in a lower unit cost of production. Costs also do not necessarily increase in direct proportion to the increase in output. In the case of Scoot and Tigerair, the two firms are able to reduce average costs by

merging flight scheduling and connections, as well as sharing a common website, contact centre and check-in counters.

- o Firms can reap managerial EOS by practising functional specialisation as their customer service, sales, training and finance departments oversee a larger scale of operations, thereby reducing the unit cost of their output.
- o Firms can reap marketing EOS by purchasing in bulk and spreading the costs of advertising their products over a larger output.
- o Firms can reap financial EOS. Firms may have to obtain funds from financial institutions to carry out their operations and research projects. With more collateral and higher credit worthiness as a borrower, large firms are likely to have a smaller risk of default. Hence they are able to secure a lower interest rate on loans, which helps to lower the average cost of the firms.
- o Vertical mergers also reduce costs by allowing firms to carry out their production with less disruption and uncertainty through better control of the supply of raw materials. For instance, a vertical merger of a car manufacturer with a steel manufacturer would reduce the costs of renewing contracts with steel suppliers.

This cost benefit is particularly large for firms where the minimum efficient scale sets in at a large output. As the firm's output expands from Q_0 to Q_1, the average cost of output falls from C_0 to C_1.
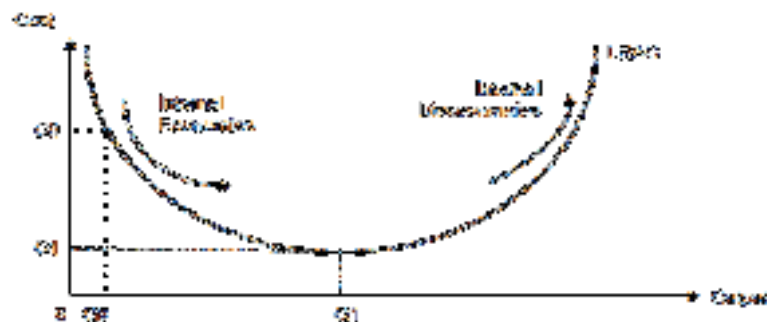
Figure 1: Reaping IEOS as output expands

2. <u>Costs of merger</u>

- **Diseconomies of scale**

However, a merged firm might become so big that internal DOS starts to set in. Internal diseconomies of scale (IDOS) are increases in cost a firm experiences as it increases its scale of production. *Students are only required to explain one type of IDOS in detail.*

- o Firms may experience internal managerial DOS due to the difficulty of coordinating between larger departments, or managing complex operations and distribution channels. These problems are likely to occur in conglomerate mergers where each firm runs a different business in a different market, which makes it difficult to manage.
- o As firms expand, ownership and management becomes more divorced, which may result in the principal-agent problem. Incentives for managers to reduce costs to increase profits may diminish. Depending on how they are paid, individual managers (the agent) may have different incentives from the shareholders/CEO (the principal) who want to maximise profits. For example, the sales manager might want to maximise sales rather than profit, and may do so at the expense of costs.

With reference to figure 1, firms that merge and experience internal DOS would incur higher average costs as they expand production beyond Q_1.

In addition, firms may not be able to reap cost benefits from mergers if they experience internal DOS fairly early in their growth. If the LRAC of the firm rises very fast, i.e. its MES occurs at relatively small output levels, the firm may not be able to expand without

experiencing higher unit costs. In this case, the firm may choose not to merge as a small firm will be more cost efficient than a large one.

Other possible determinants include diversification, access to international markets, personalised services, ability to adapt and respond, banding, etc.

Conclusion

Overall, the decision of whether to merge depends on the relative costs and benefits of such a move. Where the benefits outweigh the costs, and the nature of the industry as well as the state of the firms are such that firms are able to reap extensive internal EOS, firms would likely proceed with the decision to merge.

Level	Descriptor	Marks
3	Well-developed explanation of how considerations of revenue <u>and</u> costs affect firms' decision on merger. For full marks, there should be use of <u>real world examples</u>.	8-10
2	Under-developed explanation of how considerations of revenue <u>and</u> costs affect firms' decision on merger. OR 1-sided but well-developed explanation of how considerations of revenue <u>or</u> costs affect firms' decision on merger. <u>Max 5m</u> for revenue arguments only.	5-7
1	Answer is descriptive and/or contains significant errors in analysis.	1-4

2 b) Assess the extent to which government intervention is needed when a firm dominates the market. [15]

Applying the 3Cs:
Command = 'Assess' → Need 2-sided answer and an evaluative conclusion
Content = extent to which government intervention is needed
Context = market dominance (form of market failure)

Introduction

When a firm dominates the market, it is possible that goals of efficiency or equity could be compromised. Market failure arises and government intervention is needed. However, there are some circumstances where market dominance does not necessitate government intervention, as there are advantages associated with large-scale production by a dominant firm, which society could stand to benefit from. For the purpose of this essay, market dominance will be discussed in relation to the monopoly market structure, which has the highest level of dominance.

Thesis – Government intervention is needed when a firm dominates the market

Market failure occurs when an unregulated market fails to allocate resources efficiently and equitably, resulting in social welfare not being maximised. Market dominance results in

market failure as firms with market power are able to restrict output to increase profits, which leads to **allocative inefficiency** due to underproduction of goods and services.
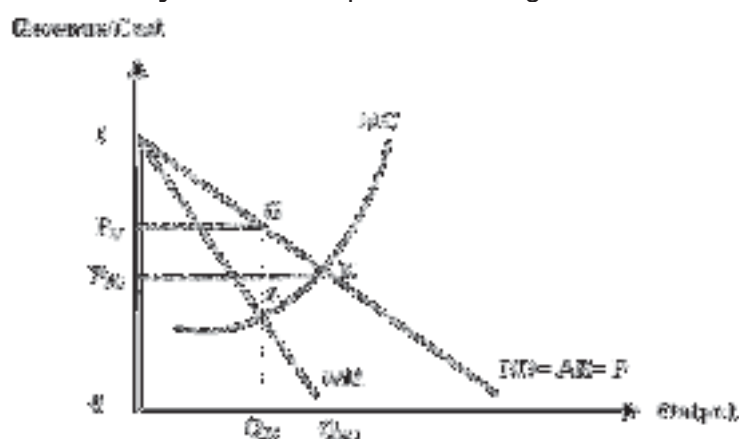
Figure 1: Allocative inefficiency with market dominance

The profit maximising monopolist will produce output up to Qm, where the MC intersects MR at A, and charge price Pm. At Qm, price is higher than MC, resulting in allocative inefficiency. At this level of output, the marginal benefit that consumers derive from the consumption of an additional unit of the good is higher than the cost to society from producing that additional unit. Hence the good is under-produced and social welfare will increase if more resources are allocated to produce the good. In comparison, a perfectly competitive firm will produce where MC intersects MR(=AR) at Qpc, and charge price Ppc. Allocative efficiency is achieved since Ppc = MC at Qpc. The underproduction of goods under a monopoly results in a deadweight loss to society as represented by the area GAK. To resolve allocative inefficiency, the government has to intervene to ensure output is produced at the socially efficient level. This can be achieved through policies such as MC pricing or nationalisation.

Monopolies are also **X-inefficient** due to the lack of competitive pressure on profit margins and lax cost controls. X-inefficiency refers to inefficient production due to higher costs incurred by the producer. For instance, overstaffing and excessive spending on unnecessary equipment and expensive buildings and less incentive to invest in R&D of new products would cause the AC and MC curves to be higher than it would otherwise have been, which translates into higher prices for the consumer. As such, the government can intervene to increase competition in the market in order to compel the firm to be more productive efficient.

In addition, a firm that dominates the market could lead to **inequity** where there will be an unequal distribution of income. This is because the monopolist can earn supernormal profits in the long run due to high barriers to entry. These profits would be concentrated in the hands of shareholders who may be mainly upper income earners. At the same time, monopoly power could be exploited to benefit the firm at the expense of consumers who have to face higher prices. This may worsen income distribution in the economy and exclude lower income groups from consuming certain goods that are essential. To alleviate inequity, the government would have to intervene to limit the firm's market power and ensure accessibility and affordability of essential goods to all.

Antithesis – Government intervention is not needed when a firm dominates the market

However, a dominant firm might not lead to significant market failure due to various reasons provided below. This suggests that government intervention is not always needed, and may even lead to more adverse outcomes.

In industries where MES is high and there are **large economies of scale** (EOS) to be exploited (e.g. natural gas distribution), a single monopolist may be **more cost efficient** than many smaller firms. The monopolist can operate on a lower marginal cost, which may lead to lower prices (Pm<Ppc) and higher output (Qm>Qpc) compared to the perfectly competitive (PC) industry. Despite the monopolist selling its product at a price above its marginal cost, the prices charged are still lower than it would have been in the PC industry. Consumer surplus will be higher for consumers in the monopoly market, hence reducing **inequity**.
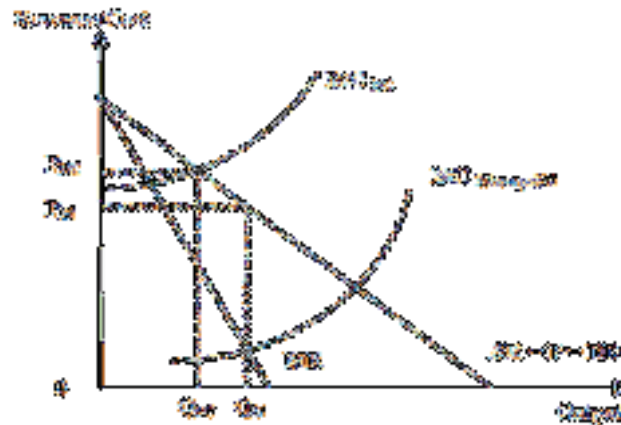
Figure 2: Monopolist with substantial EOS

In addition, market dominance enables the firm to practise **price discrimination**, which is the practice of charging different groups of people different prices for the same product for reasons not associated with differences in costs of production. Under some instances, price discrimination could be beneficial to society.

Firstly, in the case where a **good would not be produced at a single price due to subnormal profit**, first degree price discrimination may allow for this good to be produced. With reference to figure 3, the profit maximising monopolist would produce where MC=MR at output 0Q and charge a single price of 0P. However, the firm would be making subnormal profit equal to PFHG. In the long run, the monopolist would not produce the good at all since total revenue cannot cover total cost. However, if the monopolist practises first degree price discrimination, where consumers are charged the maximum price they are willing to pay for each unit, the total revenue would equal $0JKQ_1$. With perfect price discrimination, the additional revenue the firm gains (MR) is the same as the price charged for that unit of the good (P), and so the profit maximising firm would produce until $0Q_1$ units of output. At this point, the monopolist could cover total cost $0PAQ_1$ and make profits. **Allocative efficiency** is achieved as P=MC at $0Q_1$.
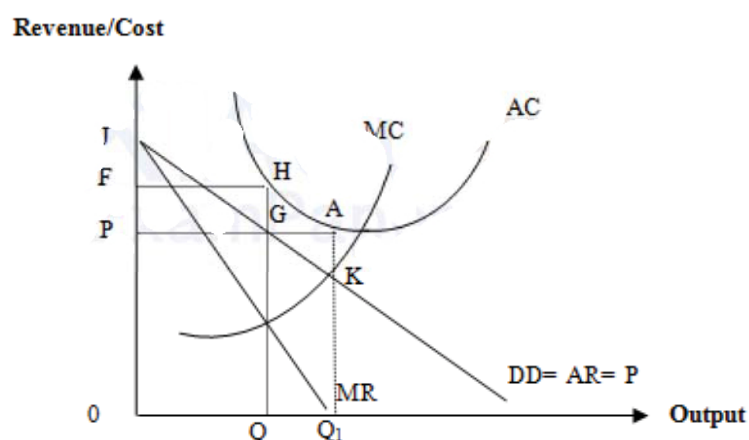
Figure 3: Monopolist with first degree price discrimination

Secondly, a dominant firm could practise **third degree price discrimination to achieve equity**. In the case of discounted medical fees for the poor, concession bus fares for pensioners and other senior citizens discounts, price discrimination sometimes allows lower-income people to buy a product that they would be unable to afford if it were sold at the single price that maximised the producer's profits. With third degree price discrimination, consumers with a more price inelastic demand are charged a higher price than those with a more price elastic demand. Those charged a lower price may thus be able to obtain a good or service they previously could not afford without price discrimination. Thus, a dominant firm that practises third degree price discrimination is likely to increase output and make the good or service cheaper and available to more consumers.

Furthermore, a dominant firm may be able to **earn supernormal profits in the long run**. This allows it to accumulate profits that may be channelled to the funding of research and development of new products. The incentive to do so comes from its desire to maintain its monopoly status which might be challenged when firms outside the industry launch new substitute products. This could lead to **dynamic efficiency** where consumers benefit from better quality goods and services, and possibly cheaper products.

Conclusion and evaluation

The above analyses are based on the assumption that firms are profit maximisers. However, in the real world, firms may have alternative objectives such as sales maximisation or profit satisficing. This might mean that firms could produce at a lower price and higher output compared to the profit-maximising case. As such, there may not be significant market failure and government intervention may not be needed to such a large extent.

In addition, the theory of contestable markets could mean that a dominant firm may not behave as the above analysis predicts. In order to retain customers and deter potential firms from entering the market, a monopoly firm may not set significantly high prices. This could also reduce the extent of market failure arising from allocative inefficiency and inequity.

In conclusion, government intervention is needed to some extent to deal with market dominance. While measures should be taken to deal with market failure from inefficiency and inequity, the government should first assess whether conditions of the market are such that a dominant firm might achieve better societal outcomes, for instance in the case of a natural monopoly, before deciding whether to intervene and if so, the forms of intervention to undertake.

Level	Descriptor	Marks
3	Balanced and well-developed answer that analyses the need for government intervention based on efficiency and equity with sufficient scope. Relevant examples are used.	9-11
2	Balanced and under-developed answer that analyses the need for government intervention based on market failure. OR Max 6m for 1-sided but well-developed answer that either explains the need for government intervention based on market failure or explains why market dominance does not require intervention.	6-8
1	Answer is descriptive and/or contains significant errors in analysis.	1-5
E2	Makes a substantiated conclusion about the need for government	3-4

		intervention in the case of market dominance.	
E1		Makes an insufficiently substantiated conclusion about the need for government intervention in the case of market dominance.	1-2

3 a) Using examples, explain why the market fails in the case of demerit goods. [10]

<u>Introduction</u>

Market failure refers to the situation in which the market, when left on its own, fails to allocate resources efficiently (i.e. attain social optimal output level where marginal social benefit (MSB) is equal to marginal social cost (MSC)) and/or achieve social goals like equity.

<u>Body</u>

Demerit goods are goods deemed to be socially undesirable by the government. Some examples of demerit goods include cigarettes, alcoholic drinks, harmful drugs and gambling. Market failure arises from the overconsumption of such goods due to negative externalities and imperfect information where the consumer is believed by the authorities to underestimate its costs. If demerit goods are provided through the free market, there would be overconsumption and hence overproduction of the goods. Hence the price mechanism over-allocates resources for the demerit goods.

Negative externalities are external costs incurred by a third party that is not directly involved in the production or consumption of a good, for which no compensation occurs. The price mechanism only takes into account private costs and benefits, which are the costs and benefits to the consumer or producer involved in the economic activity. Hence the free market equilibrium would be where MPB intersects MPC at Qe. Assuming there are no external benefits incurred, MSB = MPB.
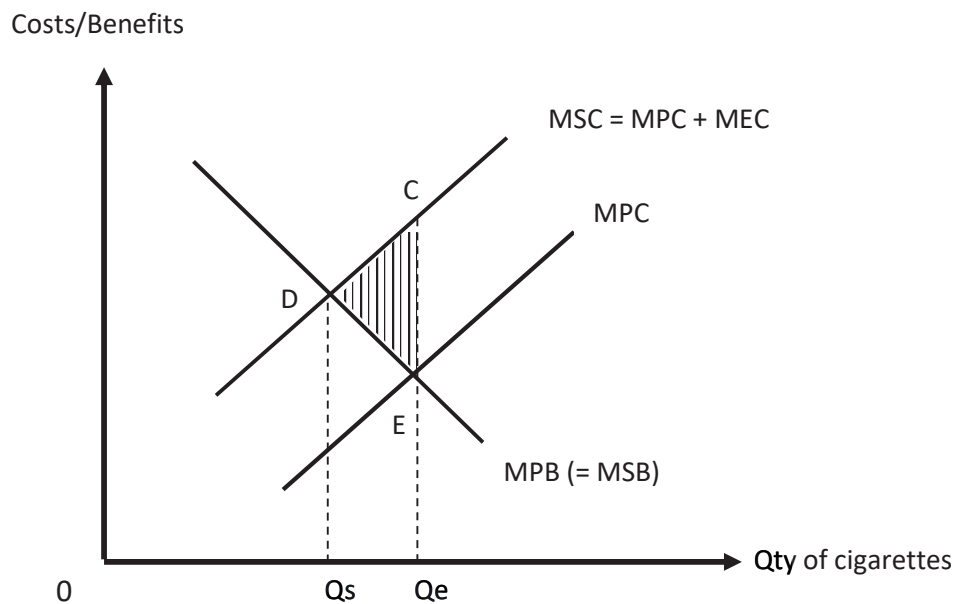
Figure 1: Market failure from negative externalities

However, external costs cause the MSC to diverge from the MPC. In the market for cigarettes, negative externalities are incurred as passive smokers suffer negative health effects such as lung problems from second-hand smoke. In addition, higher health subsidies given by the government to treat smoking-related illnesses have to be borne by taxpayers. Hence, at market equilibrium output, Qe, MSC>MSB, which means that society values an extra unit of cigarettes less than what it would cost society to produce it. Social welfare can be increased by having fewer units of cigarettes consumed. This is true until the socially optimal level of output Qs is reached when MSB=MSC. Since Qe is more than Qs, there is an overconsumption of cigarettes and this creates a deadweight loss of area CDE since

MSC exceeds MSB for the units of cigarettes from Qs to Qe. Thus, the price mechanism has allocated more than the desired amount of resources to cigarettes and allocative efficiency is not achieved.

In addition, consumers tend to overconsume demerit goods due to **imperfect information**. Imperfect information can lead to market failure when people have inaccurate, incomplete, uncertain or misunderstood data and so make potentially 'wrong' choices. For example, consumers may be unaware of the long-term health consequences of consuming alcoholic drinks and hence underestimate the private costs of consuming demerit goods such as alcohol. Hence imperfect information leads to a divergence between actual MPC and perceived MPC, where actual MPC exceeds perceived MPC.
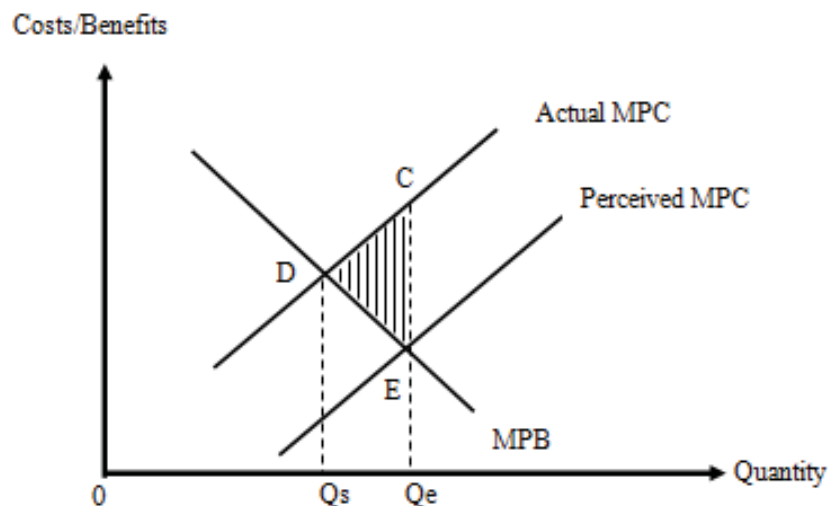
Figure 2: Market failure from imperfect information

Since consumers base their decisions on perceived costs and benefits, they consume until the point Qe where MPB=perceived MPC. If consumers acted with perfect knowledge, they would have consumed at Qs where MPB=actual MPC. Since Qe>Qs, there is an overconsumption of alcohol. This results in a deadweight loss of area CDE. Thus, there is a misallocation of resources to produce alcoholic drinks and market failure arises.

Conclusion
Thus, demerit goods are overconsumed and the market fails to allocate resources efficiently, leading to market failure.

Level	Descriptor	Marks
3	Well-developed answer that explains market failure from demerit goods (including negative externalities and imperfect information) using appropriate examples. Explanations are accurate and rigorous.	8-10
2	Under-developed answer that explains market failure from demerit goods (including negative externalities and imperfect information) using appropriate examples. Explanations are not sufficiently rigorous or contain some errors. OR Max 6m for a well-developed answer that explains market failure from demerit goods (including either negative externalities or imperfect information) using appropriate examples. OR Max 6m for a well-developed answer that does not use examples.	5-7

1	Answer is descriptive and/or contains many errors.	1-4

3 b) Discuss whether the current policies adopted by the Singapore government to deal with demerit goods are sufficient given the changing demographics. [15]

Applying the 3Cs:
Command = 'Discuss' → Need 2-sided answer and an evaluative conclusion
Content = current policies that deal with demerit goods
Context = changing demographics in Singapore

Introduction

Explain some possible changing demographics in Singapore:
- Falling birth rates/declining total fertility rate
- Rapidly ageing population and longer life expectancy
- Increase in literacy rates and highest qualification attained in education
- Increase in population with more immigrants/non-residents/foreign workers
- Rise in income inequality

Examples of demerit goods include cigarettes, alcoholic drinks, harmful drugs and gambling.

Thesis – current policies are sufficient to deal with demerit goods given the changing demographics

Suggested structure for each thesis point:

- *Explain how the policy works and solves market failure arising from demerit goods*
- *Provide examples of current policies adopted by the Singapore government*
- *Explain why the current policy is sufficient given the changing demographics*

- **Taxes**

To solve the market failure arising from demerit goods, the government imposes a tax that is equal to the external cost to compel consumers to internalise the negative externality from such goods.
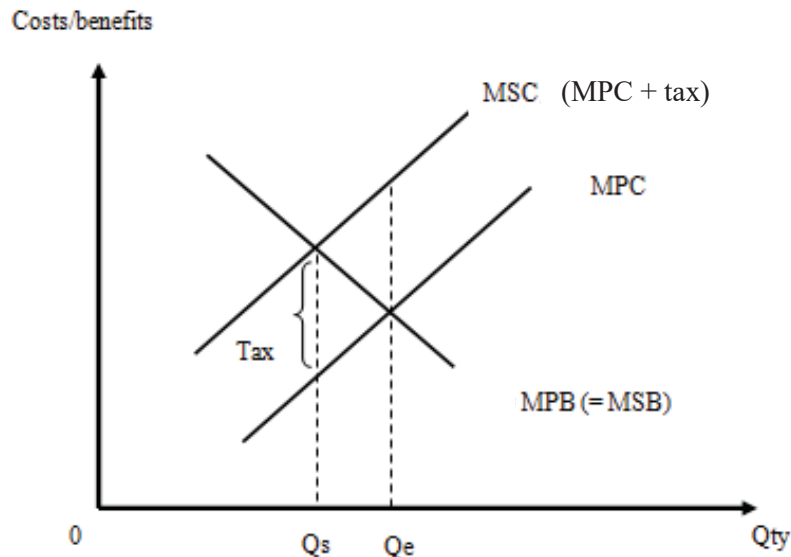
Figure 1: Using taxes to reduce overconsumption of demerit goods

This shifts the consumer's MPC up (i.e. price of demerit good rises) to (MPC+tax) to coincide with the MSC. Hence consumers are induced to consume less and move towards the socially optimal output level at Qs, at which MSB=MSC. The over-allocation of resources is corrected as there will no longer be overconsumption. This eliminates the deadweight loss prior to the imposition of the tax, and allocative efficiency is achieved. For instance, the Singapore government imposes taxes on cigarettes and alcohol to reduce overconsumption of these demerit goods. With a **rapidly ageing population and longer life expectancy** for Singaporeans, it is likely that the proportion of income spent on such goods rises as older adults' incomes fall with retirement, or they are less addicted to demerit goods like cigarettes to maintain better health. This means that their demand for cigarettes is price elastic. The imposition of a tax that increases price of cigarettes will lead to a more than proportionate fall in quantity demanded. As such, the current policy of taxing demerit goods is likely to be sufficient given changing demographics.

- **Education and campaigns**

Education and campaigns could help to resolve market failure from imperfect information about the true costs of consuming demerit goods. When more accurate information is provided, the gap between actual MPC and perceived MPC reduces. This lowers the private equilibrium output to the socially optimal output, and reduces overconsumption of demerit goods. Some examples of such policies include anti-smoking/gambling/drink-driving campaigns and health warnings on cigarette packets to inform smokers of the adverse health effects of excessive cigarette smoking. With the **increase in literacy rates and education qualifications attained** amongst Singaporeans, as well as an **ageing population and longer life expectancy**, it is likely that Singaporeans would be more concerned about maintaining good health, and education and campaigns would tend to be effective in reducing their consumption of demerit goods.

- **Legislation**

In the case of negative externalities from demerit goods, laws can be used to prohibit or regulate behaviour that imposes external costs. For example, smoking is prohibited in many public places to protect non-smokers from the harmful effects of second-hand smoke. Drinking of alcohol is also banned in all public places from 10.30pm to 7am to minimise public disorder.

To deal with imperfect information from demerit goods, legislation could be used to force producers to provide more information or prohibit false or misleading advertising of goods such as alcohol or cigarettes so that consumers are able to make more informed choices. Age restrictions of purchase and consumption of such goods could also target children and teenagers who are perceived to be less able to understand the full private costs of demerit goods.

These measures are able to solve market failure from demerit goods as overconsumption is curbed, and the private equilibrium output is reduced to the socially optimal output. In view of **Singapore's rising population size with greater numbers of immigrants and foreign workers** who may have different practices and consumption habits, legislation is likely to be effective in reducing overconsumption of demerit goods, which deters inappropriate behaviour and reduces the associated negative externalities.

Antithesis – current policies are insufficient to deal with demerit goods given the changing demographics

- **Taxes**

However, the effectiveness of taxes in dealing with overconsumption of demerit goods depends on the value of price elasticity of demand (PED). With the **rapidly ageing population and falling birth rate**, this might suggest that the proportion of chain smokers with entrenched addiction habits rises. This means that demand for demerit goods such as cigarettes is price inelastic. As such, a tax that raises the price of cigarettes will reduce the quantity demanded by a less than proportionate amount. Therefore, the reduction in externalities generated will not be very significant and market failure still arises. In order to achieve the desired reduction in quantity consumed to the socially optimal level, this implies that a high amount of tax will have to be imposed. However, smoking is more prevalent amongst lower income groups. As such, a tax on cigarettes has a regressive effect, which might present another problem given the **rise in income inequality** in Singapore as well.

- **Education and campaigns**

Education and campaigns are not enforceable by law as they serve mainly to encourage consumers to reduce consumption of demerit goods. However, consumers who are addicted to demerit goods such as gambling, drugs and alcohol may not heed the advice due to stubbornness and ingrained habits that are hard to change. With the **ageing population**, some of them might have developed habitual consumption of demerit goods and thus find it hard to reduce consumption of these goods. Also, education and campaigns may have lesser reach to them due to difficulty in conveying such messages to them. In addition, the **rising number of foreigners** suggests that campaigns may be ineffective if these people have different consumption habits that are difficult to change. Thus, education and campaigns may be insufficient in reducing overconsumption of demerit goods.

- **Legislation**

Legislation could also be limited in some ways. With the **falling birth rate and ageing population**, age restrictions of purchase and consumption of demerit goods such as cigarettes may not be enough in reducing overall consumption in society. More has to be done to curb overconsumption by the older adults, who form a higher proportion of those contributing to the negative externalities from demerit goods.

Another possible approach for the antithesis would be providing arguments for new policies that are better than current policies, as the latter are insufficient.

Conclusion and evaluation

In conclusion, current policies adopted by the Singapore government to deal with demerit goods are largely sufficient given the changing demographics. This is because the government employs a wide range of policies to deal with various demerit goods in different contexts, and constantly revises its policies. For instance, the Liquor Control Act was passed in 2015, and stricter rules were imposed in Geylang and Little India, which are designated as Liquor Control Zones, as these areas face a higher risk of public disorder associated with excessive drinking. Also, the legal smoking age has recently been proposed to be raised to age 21.

As changing demographics suggest that the effectiveness of policies may differ between different groups of people, the government should continue to monitor the consumption of demerit goods and adjust its policies to ensure they remain appropriate and effective in targeting the right groups of people and addressing the root causes of the problems.

Level	Descriptor	Marks
3	Balanced and well-developed answer that discusses <u>at least two</u> policies that deal with demerit goods in Singapore. Answer addresses this in relation to changing demographics.	9-11
2	Balanced and under-developed answer that discusses <u>at least two</u> policies that deal with demerit goods in Singapore. Answer addresses this in relation to changing demographics. OR <u>Max 7m</u> for a balanced answer that only discusses <u>one policy</u>. <u>Max 6m</u> for an answer that <u>only</u> explains policies and makes <u>no mention of changing demographics</u>. <u>Max 6m</u> for answer that does not address context of Singapore.	6-8
1	Answer is descriptive and/or contains significant errors in analysis.	1-5
E2	Makes a substantiated conclusion about the sufficiency of current policies given changing demographics.	3-4
E1	Makes an insufficiently substantiated conclusion about the sufficiency of current policies given changing demographics.	1-2

4) The rising cost of foreign package holidays and imported computer games helped to push the UK inflation rate up to 2.9% last month from 2.7% in April. The latest inflation rate is the highest since June 2013, and above the Bank of England's 2% target. The pick-up in inflation is likely to continue the squeeze on consumers.

The Guardian, 13 June 2017

(a)Explain how firms and households are affected by inflation. [10]

Introduction:

- Definition of inflation
- While low and stable inflation has positive effects on the economy, high inflation has destabilising effects on the economy.
- High inflation will cause firms and households to change their consumption and production behaviour because of the respective effects on the real value of households' income and savings and the firms' profitability

Body:

Effects of high inflation on Households
- When there is high inflation, the increase in general price level has caused the value of money to fall. Thus for the households, even though the nominal income has risen, if it is less than the inflation rate, real income will fall. Thus there is a fall in their purchasing power
- Household consumption might fall. Households will rush to purchase goods and services in advance for fear or with the expectation of even higher future prices and they cannot buy the same amount of goods and services.
- In addition, the real value of their savings and the real interest accrued in the bank may also fall. This will encourage more consumption of goods and services, or in the purchase of gold, properties and financial assets with higher returns than the interest earned in the savings. Will affect the funds available for investment in the future.
- On the other hand, households who had borrowed money from the bank to purchase big ticket items, eg car or houses, will gain as their real value of the loans/mortgages (for houses) and interest/mortgage charges will have fallen.
- Cost of living would have risen. SOL may have worsened if the increase in their nominal income has not kept up with the inflation rate. But if their nominal income is higher than inflation, then their SOL may not have fallen.
- Low income households are more negatively affected by high inflation compared to high income households. This is because they spend a larger proportion of their income on consumption of goods and services and so when prices of goods and services increase, they would be more severely affected compared to high income households which spend a smaller proportion of income on consumption.
- Households with fixed income earners would also face a greater drop in real income compared to those who earned income tied to profit level because the amount they receive in nominal terms remain constant but their real income is reduced. For those whose income depends on profit level, they would see an increase in nominal income but their real income would remain unchanged.
- With high inflation, assuming that it is relatively higher than the country's trading partner, households may switch their expenditure on domestic to imports of goods and services

Effects of high inflation on firms – centred around cost of production and real returns

- When inflation rate is high, firms may be able to increase prices to earn higher revenue, hence increasing profits in the SR. When COP (e.g wages due to workers demanding for higher wages) rises to meet the rising cost of living, the profits will fall back to its original profits in the LR.
- Unexpected inflation pushed down the real value of i/r , I rises
- Furthermore if the relative inflation rate is higher in the economy compared to other economies, firms that are dependent on the export market, may become less price competitive causing a fall in their export revenues (assuming PEDx>1).

Conclusion:

- Due to the negative effects of high inflation rates, governments around the world implement policies to attain low and stable inflation.

Level	Knowledge, Application, Understanding and Analysis
L3 (7 – 10)	Answer provides clear explanation of the effects of high inflation on firms and households. Must consider the effect on the real value of money. Points should show sufficient scope.
L2 (5 – 6)	Answer provides underdeveloped explanation of the effects of high inflation on firms and households. Such answers would lack adequate links between statements. Max 5 if candidates only addressed effects of high inflation on one economic agent
L1 (1 – 4)	Answer provides some knowledge of the effects of high inflation and relate to why governments want to achieve low and stable inflation.

(b)Discuss the alternative policies that the UK government might adopt to alleviate the inflationary pressures. [15]

Applying the 3Cs:
Command = 'Discuss' → Need 2-sided answer and an evaluative conclusion
Content = How 3 different types of policies will alleviate the inflationary pressures and their limitations
Context = UK

Introduction:

- Governments aim to attain low and stable inflation
- They have a range of policy tools at their disposal to tackle high inflation.
- Whether DD-management policies are appropriate to tackle high inflation, the main criterion is the source of inflation/root cause of inflation, namely demand-pull or cost-push. Other criteria are: nature of economy (eg open, import dependent on raw materials), trade-off (in relation to the state the economy, ie are they developing, with high unN).

Body:

Thesis:

Monetary Policy
- Where inflation is due to demand-pull inflation, governments can introduce demand-management policies such as monetary policy.
- UK can adopt a contractionary MP (fall in money supply, rise in interest rate) to increase the cost of borrowing for households and firms. The increase in interest rates made it more expensive to borrow as households and firms would have to return more interest with the loan that they took.
- As such, this helped to reduce the amount of borrowing and thus reduced consumption and investment. This caused a fall in AD and thus a fall in GPL.
- Thus MP helped to tackle the demand-pull inflation.

Fiscal Policy
- Similarly, government can make use of fiscal policy to cause a fall in AD using fiscal tools, government expenditure (G) and/or tax revenue (T).
- In this case, a decrease in G and/or an increase in T. The after-tax profits for firms will fall and it will lead to a fall in investment. The after-tax disposable income will fall and will cause the purchasing power to decrease → reducing consumption.
- C, I will fall → fall in AD → fall in GPL
- Thus FP helped to tackle the demand-pull inflation.

Supply side policies

- Where the source of inflation is cost-push inflation, training/courses can be put in place to increase the productivity of workers. An increase in productivity will allow the workers to produce more units of output per unit time and thus lowers the AC of each unit produced. This will help to alleviate the inflationary pressures due to wage increases with the assumption that wage increase is not matched with increase in labour productivity.
- SRAS and LRAS increase → reducing the GPL

Exchange rate policy
- Economies that experience imported inflation, in the case of UK – rising cost of foreign   package holiday and imported games, can implement the ERP where the government will appreciate the currency. This will make imports cheaper in terms of the domestic currency and thus lower the COP for firms. This will increase SRAS, lower the general price level

- This policy is also appropriate to address high inflation due to demand-pull inflation as the appreciation of the currency makes exports more expensive in foreign currency and imports relatively cheaper in domestic currency. Qx falls and Qm rises → fall in net exports assuming Marshall-Lerner condition holds and thus could lower AD → reduce GPL

Anti-Thesis:

Monetary policy
- MP has its limitations. One limitation is that if inflationary expectations have set in, households and firms would rather bring forward their consumption and investment and the rise in interest rates would not deter consumption or investment significantly.
- If inflation was cost-push in nature, demand-management policy would deepen the fall in NY.

Fiscal Policy

- Limitations that would affect effectiveness of FP policy– the possible small value multiplier K multiplier due to high tax rate in UK will affect MPT and the extent of the fall in GPL.
- If inflation was cost-push in nature, demand-management policy would deepen the fall in NY.

Exchange Rate Policy (ERP)

- However Marshall-Lerner condition may not hold in the SR due to contractual agreements in trade and thus may not be appropriate to tackle high inflation
- If inflation was cost-push in nature, demand-management policy would deepen the fall in NY (ERP also works to reduce GPL through reducing AD).

Supply side Policy

- Increase in productivity through training takes a long time to attain and it is not guaranteed as the success of the training depends on the attitudes and mindset of the workers undergoing training.
- Hence, supply-side policies must be implemented in tandem to cope with the increase in AD to bring stability to the general price level

Conclusion:

- Whether demand-management policies are appropriate depends on the source of inflation that the economy is facing.
- Often there are multiple sources of inflation and thus governments should employ a mix of policies that are appropriate to the respective sources of inflation. In the case of UK, the preamble does not provide sufficient information on the relative importance of the different sources of inflation.
- Governments would also have to be mindful of the effect of the policies on the other macroeconomic goals as lowering inflation by lowering AD could lead to a slowdown in growth and may result in higher unemployment should firms find it unprofitable to continue producing in the economy. In addition, there is a need to adopt supply-side policies to reduce inflation.

Level	Knowledge, Application, Understanding and Analysis
L3 (9 – 11)	Answer provides clear discussion of at least 3 policies that a government can employ to tackle inflation with an emphasis on the appropriateness in tackling certain sources of inflation
L2 (6 – 8)	Answer provides an underdeveloped discussion of at least 2 policies to tackle inflation Explanation of policies without looking at its limitations will be given max 6m
L1 (1 – 5)	Answer shows some knowledge of the policies to tackle inflation but lacks analysis.

E2 (3 – 4)	Judgement based on analysis.
E1 (1 – 2)	Mainly unexplained judgement.

5) Discuss how far the conflicts in government macroeconomic objectives depend on the openness of the economy. [25]

Applying the 3Cs:
Command = 'Discuss' → Need 2-sided answer and an evaluative conclusion
Content = the extent to which the conflicts in government macroeconomic objectives depend on the openness of the economy (Thesis: conflict depends on openness. Antit-thesis: conflict does not depend on openness.)
Context = any economy

Suggested answer:
- Government usually has the following macroeconomic policy objectives:
  - Low inflation (price stability)
  - Full or high employment
  - High and sustainable rate of economic growth
  - Balance of payments equilibrium
- Define open economy: free movement of exports, imports, and capital flows (e.g. Singapore)

Thesis: Tradeoff between inflation and economic growth/employment rates when government uses contractionary MP is affected by the extent to which economy is open

Contractionary monetary policy (achieve low inflation).
Tradeoff: Economic growth may slow
- Decrease in money supply will increase interest rates → increased cost of borrowing → decreases C and I → AD decreases, price level decreases → low inflation
- however, as AD decreases, rate of economic growth falls

Effect of open economy:
- Contractionary monetary policy may cause larger tradeoffs in an open economy
- Increased interest rates in an open economy → increased capital inflow (hot money) → exchange rate appreciates
- As exchange rate appreciates, exports become less competitive and imports increase → more unemployment in export sector, BOP worsens, AD decreases even further → further fall in NY
- Greater extent of conflict in aims

    Note: accept the converse where the trade-off is explained in terms of foregoing low inflation to pursue growth

Thesis: Tradeoff between inflation and economic growth/employment rates when government uses depreciation is affected by the extent to which economy is open

Small and open economy may choose to adopt exchange rate policy to stimulate growth.
Tradeoff: between economic growth and cost-push inflation
- Depreciation → prices of exports in foreign currency will fall while prices of imports in domestic currency will rise. Qx rises and Qm falls. Assuming M-L condition, net exports rise.
- Rise to AD which leads to actual growth and falls in unemployment.
- However, the depreciation of the currency results in imported inflation, which is cost-push inflation

Effect of open economy

- Exchange rate policy will cause larger trade-off in an open economy which may import significant imported raw materials for the production → cost-push inflation → GPL rises → affect the export competitiveness.
- Greater extent of conflict in aims

Thesis: Tradeoff between growth and unemployment when government uses ss-side policy is affected by the extent to which economy is open

Supply side policies to increase economic growth by increasing AS
- Tradeoff: Structural Unemployment may increase
- May loosen labor migration/capital flow to increase productivity (i.e., market oriented ss-side policy) → increase AS → increase long run rate of economic growth
- However, may lead to higher structural unemployment if restructuring occurs too quickly (unskilled workers are laid off)

Effect of open economy
- The greater the openness of the economy, the structural unemployment might be more serious as the free-er flow of labour and capital would replace domestic labour at a faster rate
- Greater extent of conflict in aims

Anti-thesis: Explain at least two factors other than degree of openness that affect the trade-offs.

The extent of the trade-off between economic growth and inflation also depends on other factors other than the openness → **state of the economy, type of government spending, government budget**

- Trade-off may be lower if the economy is in the midst of a severe recession and AD is currently low.
- Lots of spare capacity → can accommodate expansionary FP without adding to inflationary pressures.
- May also be temporarily if the government employs fiscal policies with supply-side effects such as infrastructure.
- Government budget – if there is budget deficit, the government may need to cut down on spending, leading to fall in AD and NY. However, the spending may have been on infrastructure, so potential growth is traded off. Conflict of low inflation and sustained economic growth.

Conclusion:

While the degree of openness definitely affects the extent of the trade-off in macroeconomic objectives, the extent to which it does so is dependent on the context of the country in question. For example, if the context is a developing that has abundant spare capacity such that it is not plausible for it to reach full employment, the state of the economy would be insignificant as an alternative factor since the economy would not reach full employment any time soon any way. In that case, the extent of conflicts in macroeconomic objectives would be largely dependent on the openness of the economy.

Level	Knowledge, Application, Understanding and Analysis

L3 (17-25)	Complete and well-elaborated explanation of how policies work to achieve certain macroeconomic goals, the conflict that arises, and how the extent of the conflicts depends on the openness of the economy. This is done for at least 2 policies. Well-developed explanation of how other factors other than the openness will lead to conflicts of the macroeconomic goals.
L2 (10-16)	Underdeveloped explanation of how policies work to achieve certain macroeconomic goals, the conflict that arises, and how the extent of the conflicts depends on the openness of the economy. Underdeveloped explanation of how other factors other than the openness will lead to conflicts of the macroeconomic goals. Complete and well-elaborated explanation of how policies work to achieve certain macroeconomic goals, the conflict that arises, and how the extent of the conflicts depends on the openness of the economy. This is done for at least 2 policies. No mention of other factors that affect extent of the conflict. Maximum – 16 Well elaborated answer that shows how conflicts in aims can happen and how the extent of the conflict depends on other factors (e.g., state of economy) – max 12m
L1 (1-9)	Descriptive answer that is poor or lack economic analysis. Answer is largely out of point or has serious conceptual errors.
E2 (3 – 4)	Judgement based on analysis.
E1 (1 – 2)	Mainly unexplained judgement.

6a) Explain the consequences of a current account deficit and a government budget deficit.

<u>Introduction</u>

The current account records receipts and payments for export and import of goods and services, incomes to and from abroad and unilateral transfers. It will be in deficit when the outflow of money exceeds the inflow of money. The Government budget is an annual financial statement that represents the government's proposed revenue and spending for that financial year. It is in deficit when the revenue is less than its deficit.

<u>Consequences of current account deficit</u>

- Indication of living beyond a country's means →If a country runs a current account deficit, presumably it is running a balance of trade deficit since the balance of trade is the main component of the current account. This means that M exceeds X. Since M is a form of consumption (imports are consumed) while X is a form of production (exports are produced to be sold abroad), M exceeding X means that the country is actually consuming more than it is producing. When this happens, we say that the country is living beyond its means. It must be financing this deficit through some form of borrowing.

- Trading off of future welfare (under a floating exchange rate) →When M exceeds X, domestic consumers are able to obtain more foreign currency from the forex market to purchase the imports than the foreigners' supply of the foreign currency when they purchase X. This difference must come from the foreigners' supply of foreign currency on the forex when they purchase assets (e.g. FDI or short-term capital flows into the domestic economy). If foreigners are purchasing domestic assets (KA inflows), then future income from these assets will flow to foreigners instead of locals (e.g. if Americans purchases shares of a local company, the profits made by the local company would go to the American shareholders in the future). This reduces future welfare.

- Trading off of future welfare (under a fixed exchange rate) →When M exceeds X, domestic consumers are able to obtain more foreign currency from the forex market to purchase the imports than the foreigners' supply of the foreign currency when they purchase X. This difference must either come from the foreigners' supply of foreign currency on the forex when they purchase assets (e.g. FDI or short-term capital flows into the domestic economy) or from the domestic central bank selling the foreign currency from the foreign reserves on the forex market. In the latter case (the former case is similar to the previous point), the central bank is drawing down foreign reserves to sell on the forex market. There would be accumulation of foreign debt, which would lead to lower future welfare.

<u>Consequences of government budget deficit</u>

- If the government budget deficit is due to excessive spending on transfers like unemployment benefits, such welfare benefits will reduce the incentive to work, leading to productive inefficiency.

- A government budget deficit means that governments need to borrow money. As the government borrows to finance government spending, it will crowd out private investment since the increased government borrowing to finance a budget deficit will increase i/r and crowd out private spending. With i/r increasing, the expected rate of returns fall → fall in investment → fall in AD and LRAS → undermine the productive capacity of the economy → sustained economic growth can't be achieved.

- A large budget deficit may cause a loss of business confidence as firms worry about whether the government would need to increase taxes soon to correct the deficit or if the government would need to cut back on essential services (e.g. maintenance of roads). This would cause a fall in I → fall in AD as well as LRAS → fall in NY

Note that a CA deficit is not the same as a fall in (X-M) and a budget deficit is not the same as a rise in G/fall in T.

Level	Knowledge, Application, Understanding and Analysis
L3 (7 – 10)	Answer provides clear explanation of the consequences of both current account deficit and government budget deficit .
L2 (5 – 6)	Answer provides undeveloped explanation of the consequences of both current account and government budget deficits. Max 5: Either clear explanation on current account deficit or government budget deficit Max 5: AD-AS analysis based on interpreting CA deficit as a fall in (X-M) and a budget deficit as a rise in G/fall in T.
L1 (1 – 4)	Answer provides some knowledge of current account deficit or government budget deficit.

6b) Assess whether such deficits are more likely to be caused by external or internal factors.

Applying the 3Cs:
Command = 'Discuss' → Need 2-sided answer and an evaluative conclusion
Content = the extent to which the current account deficit and government budget deficit are caused by external or internal factors.
Context = any economy

Thesis: The deficits are caused by internal factors

Current account deficit

A high economic growth rate indicates that real national income of a country has risen relative to other countries → Residents have higher purchasing power -> increased consumption of both domestically produced goods as well as imported goods → import expenditure rises → current account deficit

Ambitious industrialization programme: This leads to an increased demand for imported technology as large-scale imports of factors of production, e.g. machinery, equipment, raw materials and technology are required for industrialization to take place. This will lead to a drastic increase in payments for imports. This will cause the current account of the country to worsen.

Government budget deficit

Structural factors → composition of the population → ageing population and shrinking workforce due to falling fertility. Most developed economies faced these problems of ageing population and falling fertility. Size of people who are working shrank → fall in AS → fall in NY → reduced tax revenue collected. On top of that, government may need to spend more on healthcare such as rise in number of hospitals; nursing homes etc→ rise in G and fall in tax revenue → government budget deficit

Govt policy → the budget deficit could be due to the government's spending on public investment (e.g building of roads and developing new technologies) to boost potential growth in the long run. In addition, if there is under provision of merit goods such as education or public transport, the government will increase spending on these areas. In the SR, this spending may cause a deficit.

Anti-Thesis: The deficits are caused by external factors

Current account deficit

Over time, patterns of trade are likely to change as costs of production change. If other countries have been able to gain comparative advantage in the production of a good which used to be exported by the domestic country, this will mean that the similar product produced by foreign countries is now cheaper than that produced by the domestic country. The domestic country will experience a fall in export demand and a rise in import demand. A loss in comparative advantage will thus cause the current account of a country to worsen.

Government budget deficit

Recession in foreign country → fall in NY(foreign) → fall in X from domestic country → fall in AD → fall in NY → fall in tax revenue → budget deficit

Conclusion – The extent to which the deficits are caused by external or internal factors depend on the context of the country. For government budget, it depends on the state of the economy as well as how open the economy is. The state of the economy, be it developed or developing, may affect the level and type of expenditure and hence affect the budget status. The more open the economy is, the more the economy is affected by external factors. Hence, there could be more intervention by the government and will affect the budget position.

Level	Knowledge, Application, Understanding and Analysis

L3 (9 – 11)	Answer demonstrates both scope and depth of the external and internal factors for both current account and government budget deficits.
L2 (6 – 8)	Undeveloped answer that attempts to analyse both thesis and anti-thesis. One-sided argument that displays rigour of economic analysis.
L1 (1 – 5)	Answer is mainly descriptive or has major conceptual errors.
E2 (3 – 4)	Judgement based on analysis.
E1 (1 – 2)	Mainly unexplained judgement.