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EUNOIA JUNIOR COLLEGE
JC2 Preliminary Examination 2021
General Certificate of Education Advanced Level
Higher 2

ECONOMICS

Paper 1 Case Study

9757/01

13 September 2021

2 hours 15 minutes

Additional Materials: Answer Booklet

READ THESE INSTRUCTIONS FIRST

An answer booklet will be provided with this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

Answer **all** questions.

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

This document consists of 7 printed pages and 1 blank page.

[Turn over

Question 1: The battery is ready to power the world

Extract 1: Strong growth expected in Electric Vehicle (EV) charging stations

The number of EV charging stations continue to surge. ChargePoint, which manages a network of EV charging locations worldwide, has pledged to build out 2½ million public charging stations by 2025, with roughly half of those in North America and half in Europe.

"This is the biggest commitment we've ever made," ChargePoint CEO Pasquale Romano said during a conference call with reporters. "I think we're at a huge tipping point here. This growth in EVs and charging infrastructure is going to continue." This expansion in provision of charging stations has contributed significantly to the increased adoption of EVs.

ChargePoint has raised some $300 million to move forward with the plan to expand the charging network, both in North America and in Europe, according to Romano. Business owners would pay ChargePoint for installing charging stations in their parking lots and would recoup their costs by charging drivers a fee for use of the service.

Source: *Transport Topics, 18 September 2018*

Extract 2: The Electric Vehicle revolution

The EV revolution is well under way. Norway ambitiously heads toward having all new cars sold as zero-emission by 2025. China continues to be one of the major drivers of EV boom. The United States market experiences strong growth, driven by models from Tesla, Chevrolet and Nissan. The United Kingdom and France have announced they would ban the sale of new petrol-powered vehicle by 2040.

Globally, the growth of the EV market is mainly attributed to factors such as supportive government policies and regulations promoting the adoption of EV, increasing investments by leading automobile firms, rising environmental concerns regarding automotive emissions, and the decreasing prices of batteries.

EVs are generally well-regarded by governments, as seen from the range of different government initiatives to stimulate consumer demand. Switching to EV means less air pollution-related illness, and therefore substantial savings in health care costs.

A stellar example of a country that's fully charged to go electric is Norway. It has the highest number of EVs per person in the world, with close to 300,000 registered units in its EV fleet in 2018. According to the European Alternative Fuel Observatory, almost 50% of the cars purchased in Norway in 2018 are electric.

What lies behind such impressive result that puts Norway ahead of others? The answer seems clear: change of consumer habits through comprehensive incentive package introduced gradually since the 1990s. One of the key policies is Norwegian car-taxation system, based on the principle that the more you pollute, the more you pay. Tax for a new car is calculated in a way that makes big cars with high emissions very expensive. This results in most EVs becoming cheaper compared to similar petrol models.

In addition, other incentives are in place such as 25% tax exemption for new EV purchases, road toll exemption, low annual road tax, free access to municipal parking and ferries, access to bus lanes and good network of public charging stations.

However, once government incentives are phased out, it remains to be seen whether consumers will perceive EVs as an economically viable option. A lot will depend on the ability of car manufacturers to cut production costs, and also how much countries have advanced in installing related infrastructure such as charging stations.

Source: *Various*

Extract 3: The battery decade: How energy storage could revolutionise industries in the next 10 years

What a difference a decade can make. In 2010, batteries powered our phones and computers. By the end of the decade, they are starting to power our cars and houses too. Two major developments have characterised the battery decade: increasing lithium-ion battery production and the search for alternatives to lithium-ion batteries.

Over the last ten years, massive investments in battery manufacturing led to a surge in lithium-ion battery production. This drove down prices to the point that — for the first time in history — EVs became commercially viable from the standpoint of both cost and performance. The next step, and what will define the next decade, is utility-scale storage.

As the immediacy of the climate crisis becomes ever more apparent, batteries hold the key to transitioning to a renewable-fueled world. Solar and wind are playing a greater role in power generation, but without effective energy storage techniques, natural gas and coal are needed for times when the sun isn't shining, or the wind isn't howling. And so large-scale storage is instrumental if society is to shift away from a world dependent on fossil fuels.

Costs that remain high are among the reasons preventing a surge in lithium-ion battery grid integration. Another factor is that this specific type of battery may not necessarily prove to be the best suited to storing energy for longer periods of time. They've also been known to catch fire, and there are issues with some of the required components like cobalt, almost half of which comes from Congo. Recycling and the spillover environmental impact of metals extraction are other issues to watch.

Billions of dollars are being spent to find alternatives. Solid-state batteries — which use sodium, for example, instead of liquid electrolytes — is one possible option, as are flow batteries, which use tanks of electrolytes to store energy. But neither of these are viable options just yet as costs remain high and performance remains low.

While the exact type of battery that will win out is unknown, what's certain is that batteries will play an even larger role in powering our lives going forward. Industry observers postulate that evolving mindsets, and steady advances in technology, have set in motion a seismic shift in how we will power our lives and organise energy systems as early as 2030.

Source: *Pippa Stevens, CNBC, 30 December 2019*

Questions

(a) Explain how scarcity leads to the inevitability of choices by producers and consumers of electric vehicles (EVs). [3]

(b) **(i)** Define the concept of cross elasticity of demand. [1]

(ii) Using evidence in Extract 1, explain the possible value of cross elasticity of demand between charging stations and EVs. [3]

(c) With reference to Extract 2 and the use of a diagram, explain why there could be allocative inefficiency in the consumption of EVs. [5]

(d) The increase in number of EVs is due to free market forces rather than government intervention.

Using demand and supply analysis, discuss the validity of this view. [8]

(e) Discuss how developments in the battery industry will impact sustainable growth. [10]

[Total: 30]

Question 2: Problems in India's Economy

Table 1: Economic statistics for India from 2017-2020

	2017	2018	2019	2020
Inflation Rate (%)	3.6	3.4	4.8	6.2
Real GDP growth rate (%)	6.8	6.5	4.0	-8.0
Balance of Trade (billion US$)	-150.68	-189.69	-161.72	-95.69

Source: *Statista*, 2020

Extract 4: Inflation is a 'tax' on the poor

India's annual inflation has accelerated to its highest level in more than five years. This has led to a reduction in the standard of living for the people in India, especially for the poor. The rising inflation means consumers are now paying more for essential food items, which is the main source of expenditure for poor and middle-income groups.

Experts explain that persistently high levels of inflation could drag economic growth as rising prices for items make saving harder, forcing individuals to either cut down on expenses or find ways to increase income. But in a period of recession, when employment opportunities are limited, the prospect of increasing income is tricky. Since employment opportunities are limited and many from the services sector are living on lower incomes, the high costs for food, energy and other essential goods and services could become a major threat for long-term growth. Lower household savings could create a demand void for non-food commodities, resulting in lower business in key sectors like real estate and consumer goods.

Adapted: *India Today*, 10 December 2020

Extract 5: Indian economy will continue to face inflationary pressures in the near term

A key source of inflation uncertainty comes from food price pressures. The most significant near-term risks to India's inflation outlook stem from the impact of the monsoon season on food prices, said Rajiv Biswas, an economist. The immediate cause of rising prices has been the setback to agricultural production from an unusual combination of delayed onset of the southwest monsoon, which has led to reduced sowings. Additionally, prolonged unseasonal rains have also damaged the crops at the time of harvesting.

Moreover, India is particularly vulnerable to rising world oil prices as it is heavily reliant on imported oil and gas for its domestic energy requirements, Biswas added, citing the Organization of the Petroleum Exporting Countries (OPEC) cuts in crude oil production and unfolding conflict in Libya.

There has also been sustained growth in exports, which demonstrated the strength and resilience of the exports sector. There is also sign that global trade is recovering fast. Global demand during this period has also remained buoyant as the order booking positions of the exporters have still been impressive. Textiles and apparels, chemicals and electronic goods were the other dominant export drivers.

Source: *Various*

[Turn over

Extract 6: Trade friction heats up between India and US

Bilateral trade between India and the United States has grown to about US$115 billion in 2016 from US$20 billion in 2001. The United States buys close to a fifth of India's goods and services exports and its trade deficit has widened from US$13 billion in 2006 to US$31 billion in 2016.

India announced higher import tax on electronics products such as mobile phones and television sets in December. India says the move is aimed at giving local industry the chance to grow and create the tens of thousands of jobs needed for a young workforce.

U.S. businesses and diplomats are pressing India to cut tariffs, industry and government sources say, after New Delhi's move to increase customs duties on dozens of products to help its flagship Make-in-India drive aggravated differences over trade. Ford, which has two car manufacturing plants in India, has sought a reversal of the new tariffs on auto components, while Apple Inc. is concerned its iPhones have become even more expensive in the price-conscious US$10 billion smartphone market.

"It is important that India make greater efforts to lower barriers to trade, including tariff and non-tariff barriers, which will lower prices to consumers, promote development of value chains in India," said a U.S. State Department spokesperson

The US Congress has been pushing over the past year for greater pressure on India to dismantle economic barriers, and now House Republicans have raised the issue of the new round of duties with New Delhi.

Source: *The Straits Times*, 23 February 2018

Extract 7: What is the way out for India?

India entered a technical recession last week — it was the first time in decades that South Asia's largest economy saw two consecutive quarters of contraction. Economists are divided on what needs to be done for India to recover from its current economic problems. Some economists suggest that policymakers should stop worrying about inflation and instead focus exclusively on boosting demand in the economy. They consider the Reserve Bank of India (RBI)'s target of keeping inflation from rising above 6 per cent as an arbitrary one and believe that the central bank should further ease its policy stance and the government should spend more on infrastructure and other sectors to boost the economy.

Economists who believe that the current slowdown is due to the lack of sufficient consumer demand, prescribe greater spending by the government to resuscitate the economy. As per RBI data, less than 40 per cent was for private consumption spending. In addition, the power sector is facing an existential crisis which has led to the scaling down or even closure of many power plants, a fact that could explain the fall in power generation. Likewise, the stagnation in private investment, even after reduction in interest rates and tax rates, points to other issues such as a preference for short-term profit or weak sentiments over the prevailing conditions in the economy.

RBI's targeted range of inflation is between 2 and 6 per cent. If the central bank decides to inject fresh money into the economy by cutting its interest rate, it could lead to a further rise in prices and make things worse. A similar rise in inflation could result if the government engages in deficit spending.

Adapted: *The Hindu*, 19 January 2020

Questions

(a) Explain how inflation rate is measured and state what happened to prices of goods and services in India from 2017 to 2018. [3]

(b) Explain why inflation has 'led to a reduction in the standard of living, especially for the poor' (Extract 4). [5]

(c) With reference to Extract 5, discuss whether setback to agricultural production is the main reason why '(India) will continue to face inflationary pressures in the near term.' [8]

(d) Using Extract 6, explain whether India's tariffs on imports is justified. [4]

(e) In view of its inflationary situation, discuss the appropriateness of using monetary policy in India to tackle its recession. [10]

[Total: 30]

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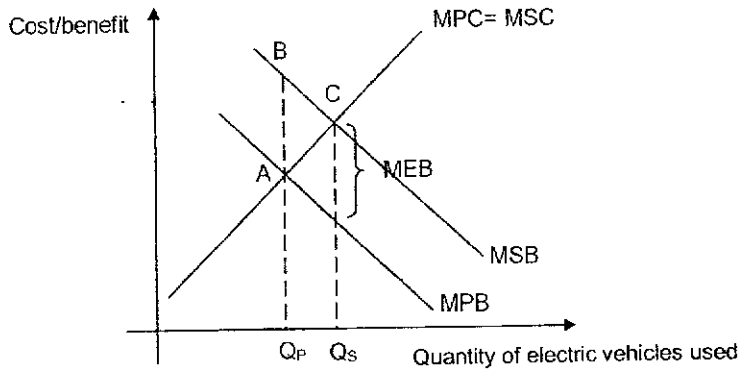
Eunoia Junior College
2021 JC2 H2 Economics Preliminary Examination Paper 1
Suggested Answers and Markers Comments

Question 1

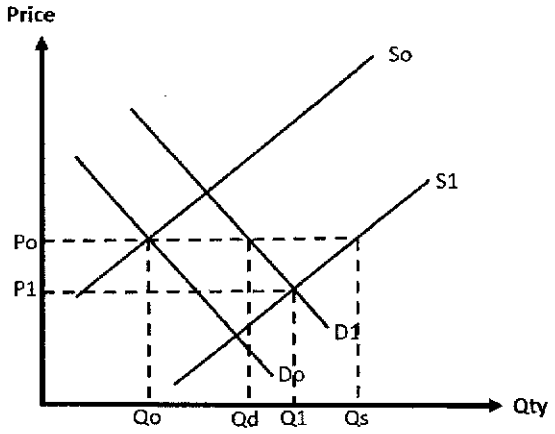
(a)		**Explain how scarcity leads to the inevitability of choices by producers and consumers of electric vehicles.**	**[3]**
		Scarcity refers to the situation of unlimited wants and limited resources. Because not all wants can be satisfied, a choice must be made. [1] Producers face unlimited wants in the form of wanting to produce more electric vehicles and petrol vehicles, but face limited resources in the form of labour and production lines. [1] Consumers face unlimited wants in the form of wanting to purchase electric vehicles and other consumer goods such as fridges, houses, but are limited by their income levels. [1]	
(b)	**(i)**	**Define the concept of cross elasticity of demand.**	**[1]**
		Cross elasticity of demand refers to the degree of *responsiveness* of demand/quantity demanded for a good to a given change in the price of a related good, ceteris paribus.	
(b)	**(ii)**	**Using evidence in Extract 1, explain the possible value of cross elasticity of demand between charging stations and electric vehicles.**	**[3]**
		With the surge in electric vehicle charging, the adoption of electric vehicles will be hastened (Extract 1). Thus, charging stations and electric vehicles are close complements. [1] As such, a fall in price of charging stations would lead to a more than proportionate rise in demand for electric vehicles. [1] Thus, the sign of cross elasticity of demand is likely to be negative and the magnitude is likely to be more than one. [1]	
(c)		**With reference to Extract 2 and the use of a diagram, explain why there could be allocative inefficiency in the consumption of electric vehicles.**	**[5]**
		When consumers purchase electric vehicles, they equate MPB to MPC and consume up to Qp of electric vehicles as shown in the figure. [1] The MPB of electric vehicles refer to the comfort of driving, and the MPC refers to the cost of purchasing the electric vehicle and the cost of parking. However, the consumption of electric vehicles generate positive externality in the form of savings in health care costs for people living near heavily used roads, due to cleaner air (Extract 2). [1] This gives rise to MEB and hence MSB diverges from MPB in the figure. Thus, at output Qp, MSB exceeds MSC. This means that it is possible to increase societal welfare by increasing the consumption of electric vehicles. In	

fact, the social optimum level of output would be at Qs, where MSB equals to MSC. [1]

Summing up the excess of MSB over MSC for output QpQs, we arrive at the monetary measure of welfare loss, indicating that there is allocative inefficiency. [1]



(d)		**The increase in number of electric vehicles is due to free market forces rather than government intervention.** **Using demand and supply analysis, discuss the validity of this view.**	**[8]**
		<u>Side 1: The increase in number of electric vehicles is due to free market forces</u> The increase in number of electric vehicles can be attributed to a **rise** in its **demand**: • From Extract 1, the decrease in price of related good (close complement) in the form of charging stations, has led to an increase in demand for electric vehicles. • From Extract 2, this is because of changing tastes and preferences of consumers from environmental concerns, which turn them towards consuming the cleaner alternative of electric vehicles. The increase in number of electric vehicles can also be attributed to a **rise** in its **supply**: • From Extract 2, there has been an increase in number of firms producing electric vehicles, including Tesla, Chevrolet and Nissan; decreasing price of batteries, which reduces cost of production of electric vehicles. The increase in both demand and supply of electric vehicles causing a surplus (Qd<Qs) assuming that the rise in supply is greater than the rise in demand. This will result in a downwards pressure on price. Overall there will be a large increase in equilibrium quantity from Qo to Q1.	



Side 2: The increase in number of electric vehicles is due to government intervention

Government intervention has also played a role in the expansion of the electric vehicle market:

- The government has given tax incentives in the production of electric vehicles. This will reduce the cost of producing them resulting in a rise in supply causing a rise in quantity.
  (Alternatively, candidates can explain that tax incentive is providing directly to consumers resulting in a rise in demand.)

Judgement: The increase in number of electric vehicles is due more to government intervention in Norway, but may not be so for other economies

- From the information given, we could conclude that the rise in number of electric vehicles is due more to government intervention, as the government policies implemented are market-based in nature and aim to influence the cost of using electric vehicles.

Level	Descriptor	Marks
L2	For an answer that provides rigorous and coherent and explanation of how consumers, producers and the government impact the quantity of electric vehicles. Analysis has to be relevant and well supported by case study evidence.	4 – 6
L1	For an answer that has a smattering of points displaying some recognition of market forces and government intervention entail. Answer makes little or no links to demand and supply, or equilibrium quantity. For an underdeveloped answer that provides a superficial analysis or one lacking in scope	1 – 3

		E2	For an analysis of whether the market or government initiatives led to the increase in quantity of electric vehicles.	2
		E1	For an evaluation / judgment that is unsubstantiated	1

(e) Discuss how developments in the battery industry will impact sustainable growth. **[10]**

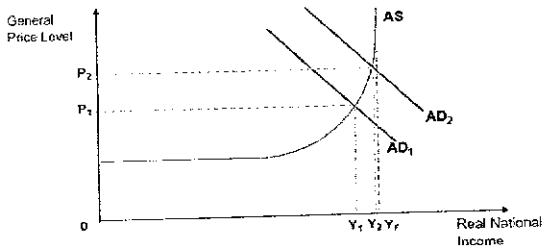
Developments in the battery industry

There has been an increase in battery production (Extract 3: 'surge in battery production') leading to an increase in supply of batteries, lowering its price and leading to an expansion of the industry (increase in equilibrium quantity).

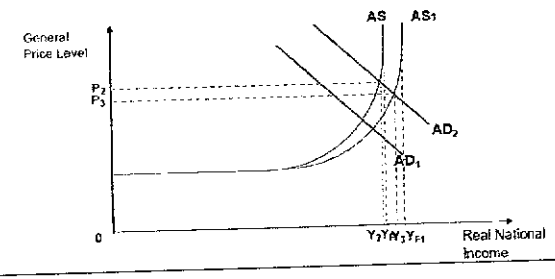
There has also been more efforts on finding different alternatives to lithium-ion batteries.

Impact of developments on economic growth

The significant increase in investments in battery manufacturing constitute an increase in investment expenditure. In the short run, this would increase AD. As AD increases from AD1 to AD2, there is unplanned running down of stocks, resulting in firms increasing production and their demand for factors of production, including labour. This increases the income earned and income-induced consumption increases. Via the multiplier effect, the economy would experience a multiplied increase in AD and real GDP (from Y1 to Y2). Assuming there is spare capacity in the economy, there would be actual growth.



In the long run, the expansion of the battery industry would change the way energy systems are organised (Extract 3) and this would lead to greater productivity, increasing the productive capacity and hence LRAS from AS to AS1, allowing the economy to experience potential growth.



Impact of developments on the environment

However, in the production of batteries, there could be negative externalities generated in the form of environmental damage from metal extraction (Extract 3). If the battery industry were to develop too quickly, such that resources are depleted too quickly, then there could be economic problems created for future generations, thus having an adverse impact on sustainable growth.

At the same time however, the development of the battery market will lead to positive impact on the environment elsewhere:

- an expansion of the electric vehicle market, which generates positive externalities in consumption. Since EV is a cleaner alternative to petrol-powered vehicles, the environmental problems that result would be lessened and this would have a positive impact on sustainable growth.
- as a renewable resource, the usage of battery as a source of power is less likely to result in a depletion of resources, thus having a positive impact on sustainable growth.

Overall impact on sustainable growth

If the increase in actual and potential growth are in tandem, the economy would be able to experience sustained economic growth over the long run. In the initial phase of development of the industry, there could be more negative externalities generated, particularly with the increase in battery production. However, in the long run, when production methods are refined or when cleaner alternative sources of batteries can be found, the positive impact on the environment can be felt and sustainable growth can be achieved then.

Level	Descriptor	Marks
L2	For an answer that provides rigorous, coherent and in-depth assessment of the how the developments impact actual growth, potential growth, and the environment. Analysis has to be relevant and well supported by case study evidence.	5 – 7
L1	For an answer that has a smattering of points and merely states how the developments in the battery industry affects either sustained growth or the environment. For an underdeveloped answer that provides a superficial analysis or one lacking in scope	1 – 4
E2	For an evaluation that assesses the overall impact of the development of the industry on sustainable growth.	2 – 3
E1	For an evaluation / judgment that is unsubstantiated	1

Question 2

(a)		**Explain how inflation rate is measured and state what happened to prices of goods and services in India from 2017 to 2018.**	**[3]**
		Inflation is defined as sustained rise in the *general price level* of a given basket of goods and services in an economy over time, usually in a year [1]. The inflation rate is measured by percentage changes in the *consumer price index* [1] that examines the *weighted average of a prices of a basket of goods and services*. OR The inflation rate can be calculated using the following formula: $\textbf{Rate of Inflation} = \frac{\text{CPI for year x} - \text{CPI for year (x-1)}}{\text{CPI for year (x-1)}} \times 100\%$ Prices of goods and services in India increased from 2017 to 2018 as inflation rate is positive (Table 1) [1].	
(b)		**Explain why 'inflation would lead to a reduction in standard of living, especially for the poor.'**	**[5]**
		Standard of living refers to the well-being of residents in a country consisting of both material and non-material aspects. Material standard of living refers to the quantity and quality of goods and services available for consumption and non- material standard of living refers to the intangible aspects which enables residents in a country to have an enjoyable and fulfilling life such as leisure time and clean environment. <u>Reduction in material SOL</u> [2] Assuming no change in nominal income levels → real income falls → consumers real purchasing power falls, unable to afford essential goods and services like food and electricity to satisfy their needs and wants → lower m. SOL <u>Reduction in non-material SOL</u> [2] With lower purchasing power, consumers may be worried and may work longer hours to earn the same level of real income → increased stress and less time for leisure activities, also suffer from poorer health if unable to afford basic food and electricity, lower life expectancy → fall in non-material SOL <u>Especially the poor</u> [1] It was mentioned in Extract 4 that the rising inflation means consumers are now paying more towards essential food items indicating that the poor spends a larger proportion of income on necessities. Additionally, the higher cost of food indicates that food has a significant increase in price levels affecting the standard of living of the poor.	

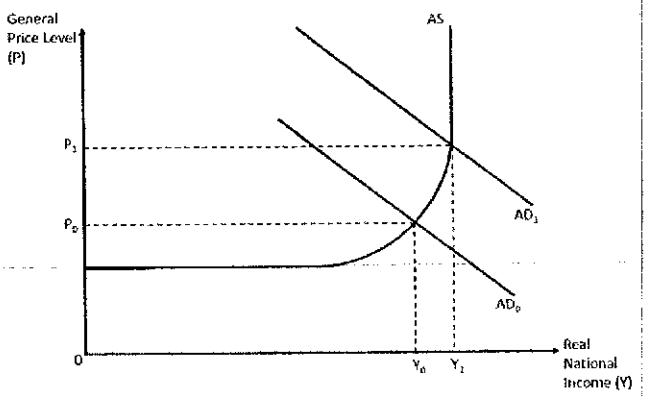
(c)		**With reference to Extract 5, discuss whether setback to agricultural production is the main reason why '(India) will continue to face inflationary pressures in the near term.'**	**[8]**

P1: Setback to agricultural production is a cause of inflation

↓Productivity yield → ↓supply of agricultural goods → shortage → ↑domestic prices of foods → foods are a key raw materials in food stalls and restaurants → ↑costs of production incurred by firms → ↓SRAS → SRAS curve shifts downwards → ↑cost-push inflation from domestic source.

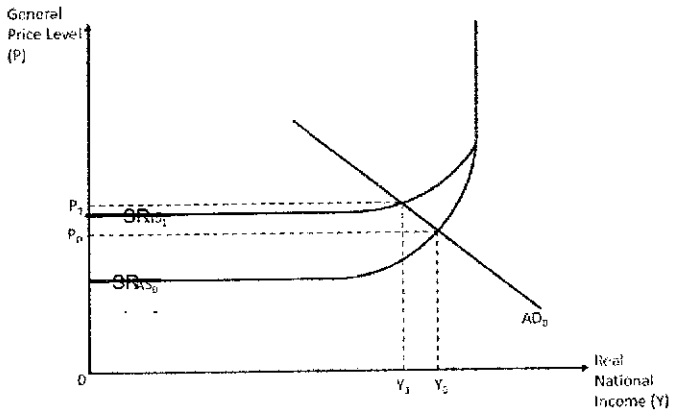
P2: Sustained growth in exports sector would be another cause of inflation

↑Global trade → ↑global demand for India's textiles, apparels, chemicals and electronic goods → assuming ↑X > ↑M → ↑Net exports i.e. (X-M) → ↑AD curve from AD0 to AD1 → as the economy nears full employment at Y1, firms ↑production of output from Y0 to Y1, firms have to bid up prices for the increasingly scarce resources → Demand pull inflation as GPL increases from P0 to P1.



P3: Rising world oil prices would be another cause of cost-push inflation inflation

↑World oil prices → as India's economy is heavily reliant on imported oil and guess for its domestic energy requirement → since these fops are key inputs in production → ↑costs of production incurred by Indian firms → ↓SRAS → SRAS curve shifts upwards from SRAS0 to SRAS1 → ↑imported cost-push inflation as ↑GPL from P0 to P1.



Evaluation: which is likely the main cause of inflation in Indian economy?

Setback to agricultural production is not the main reason for India's inflation in the near term because it is one of the root causes that explain cost-push inflation. There are two other root causes involved which are the demand-pull inflation arising from strong ↑AD leading to the state of the Indian economy to be at full employment and the cost-push inflation arising from ↓SRAS arising from ↑imported prices of energy.

Level	Descriptors	Marks
L2	Relevance • Answer considers both cost-push inflation arising from setback to agricultural production and demand-pull inflation. Content/Analysis • Clear and accurate analysis to support argument. Application • Answer shows application to the given context.	4-6
L1	Relevance • Answer considers either cost-push inflation arising from setback to agricultural production or another factor. Content/Analysis • Some ability to provide analysis to support argument.	1-3
E	For an evaluative comment that builds on prior analysis.	1-2

(d) Using Extract 6, explain whether India's tariffs on imports is justified. **[4]**

Not tested due to CLT

(e) In view of its inflationary situation, discuss the appropriateness of using monetary policy in India to tackle its recession. **[10]**

Introduction

Real GDP growth rate in India was -8% in 2020 as shown in Table 1 indicating that it is currently in a recession. This is coupled with rising inflation rate from 3.6% to 6.2% from 2017 to 2020. This means that India is facing high price instability with negative economic growth.

P1: Use of expansionary monetary policy is appropriate to tackle recession

- How expansionary monetary policy works:
  - From Extract 7, it was mentioned that Reserve Bank of India (RBI) may inject cut in its interest rate to stimulate economic growth. The reduction in interest rate means an increase in opportunity cost of savings and lowers cost of borrowing. This would increase the willingness and ability of consumers to borrow money from banks to spend on big tickets items. This addresses the lack of consumer demand mentioned in Extract 7 that led to the slowdown.
  - The fall in cost of borrowing would also increase the willingness and ability of firms to borrow more money to invest. This is so as more investments would be profitable assuming the same rate of return.
  - This would lead to an increase in both consumption and investment expenditure in India and spur an increase in aggregate demand from AD_0 to AD_1 to AD_2 in India as shown in Figure 1 below.

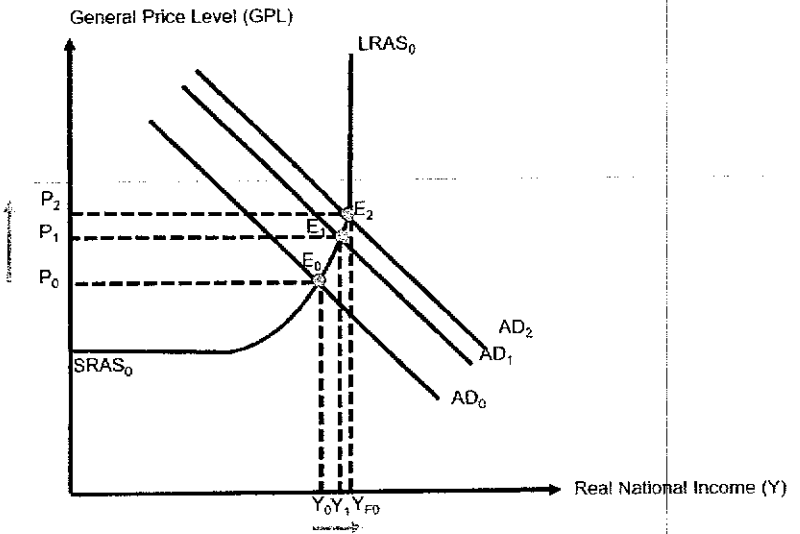


Figure 1: AD/AS in India

  - As AD increases, there will be unplanned fall in inventory in the economy and firms will increase production in the next period. This means that more factors of production (eg. labour) will be hired which will lead to higher derived-demand for labour. The increase in AD will also generate multiple rounds of spending by consumers (income-induced consumption) and lead to multiplied increase in real national income from Y0 to Y1 and YF0, resulting to actual growth – hence, effectively tackled the recession problem faced by India.

P2: Limitations of expansionary monetary policy centred on i/r (conflicts on macro aims – worsen inflation problems in India – further limits growth)

- However, assuming that India economy is operating with limited spare capacity as shown on Figure 1 above, an increase in AD will lead to demand-pull inflation from P_0 to P_2.
- Referring to Figure 1, the initial equilibrium in the economy is close to full employment (i.e. little spare capacity). When AD increases from AD1 to AD2 to AD3, firms face an unplanned decrease in stocks/inventories at the original general price level P1. In order to increase production, they will hire more resources (i.e. factors of production) thereby competing with other producers for the same scarce resources. This leads to an increase in unit cost of production, which firms will pass on to consumers in the form of higher prices. This is represented by an upward movement along the upward-sloping section of the AS, i.e. SRAS (note that it is not a shift of the SRAS curve). This leads to lead to demand-pull inflation where prices increase from P_0 to P_2.
- This is a concern as India is already battling with rising inflation problem (Table 1). This rise in GPL will further impede consumption spending as real purchasing power falls. Firms are also less likely to spend on investment due to uncertainty in prices which dampened investors' confidence. This would further limit the use of expansionary monetary policy centre on i/r in tackling recession.

P3: Limitations of expansionary monetary policy centred on interest rates (effectiveness are impeded by lack of consumer sentiments)

- In addition, expansionary monetary policy centred on interest rate might not be the most appropriate measure because India's consumers and firms may not be motivated to spend despite the falling interest rate. This is evident from Extract 7 where it was mentioned that there have been power failures in several power plants. This means that firms might be occupied with difficulties to maintain day-to-day operation of their business without proper supply of electricity. Hence, they would not have the means or capacity to even consider buying more capital equipment. In addition, consumption spending only takes up less than 40% of GDP in India. Hence, the likelihood of significantly increasing economic growth via reduction of i/r would be rather low.

Evaluation

Stand: Expansionary monetary policy centred on i/r may be appropriate in tackling recession in India as the root cause of recession could stem from a lack in domestic demand coupled with rising unemployment as suggested in Extract 4.

Conflict in aims unlikely: In addition, the conflict in macro aims between economic growth and price stability is unlikely to occur with the use of i/r policy as India is a large economy with spare capacity and is more likely to be operating below full employment level. Hence, the likelihood of demand-pull inflation occurring is low.

Mark Scheme

Level	Descriptors	Marks
L2	Relevance o Thorough knowledge of the facts and theory of the question o Answers cover the concept of ADAS and how expansionary policy can achieve higher economic growth Content/Analysis o Excellent ability to describe and explain this in a precise, logical, reasoned manner. o Clear and coherent analysis, grounded by economic concepts, frameworks and principles. o Balanced view with clear explanation of H and L of expansionary monetary policy on i/r Application Skilled application to relevant context Structure There should clearly be a reasoned and analytical structure to the whole answer	5-7
L1	Relevance o Answers are relevant to question but undeveloped explanation of facts and theory. o Answers cover economic growth but did provide clear ADAS framework. Content/Analysis o Theory accurate but may be incompletely explained (underdeveloped) o Basic errors of theory Application Display of some knowledge but meaning of question not properly grasped Structure Attempt to provide a reasoned and analytical structure	1-4
E2	Well-reasoned judgments/decisions Synthesises economic arguments to arrive at well-reasoned judgments on whether expansionary monetary policy on i/r is appropriate in India's context.	2-3
E1	For an evaluation / judgment that is unsubstantiated	1

EUNOIA JUNIOR COLLEGE
JC2 Preliminary Examinations 2021
General Certificate of Education Advanced Level
Higher 2

ECONOMICS

Paper 2 Essays

9757/02

17 September 2021

2 hours 15 minutes

Additional Materials: Answer Booklet

READ THESE INSTRUCTIONS FIRST

An answer booklet will be provided with this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

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.

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

This document 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 Honey's increasing popularity as a natural and heathier sweetener has led to a booming honey market. In the pursuit of supernormal profits, many new beekeepers have subsequently entered the market for honey.

(a) Explain how the above events can first lead to a rise, and subsequently a sharp fall in the price of honey. [10]

New Zealand-produced honey is viewed by consumers to be of high quality. Income is rising in China and many New Zealand beekeepers are choosing to export honey to China instead of selling them domestically.

(b) Discuss the likely effects of these changes on consumer expenditure for New Zealand-produced honey in both countries. [15]

2 Sports equipment retailer Adidas announced a new shoe, Futurecraft.Loop, which is made of thermoplastic that can be reused. This will allow Adidas to appeal to consumers who are concerned about their environment and establish a readily available source of production material, especially if Adidas can secure unwanted old sneakers to harvest the thermoplastic.

Discuss whether the development of the new technology by Adidas is always aligned with the profit-maximisation objective. [25]

3 **(a)** Explain why governments intervene in the provision of public goods and when monopoly power is present. [10]

(b) Discuss the factors that a government should consider when deciding whether to impose price control or pro-competition policy in markets with monopoly power. [15]

Section B

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

4 Prime Minister Lee Hsien Loong highlighted that Singapore must prepare for the impact of climate change, which can bring about food shortages and forced migration of displaced populations. As a low-lying island, Singapore is vulnerable to the destructive effects of rising sea levels, which may divert trade to other nations' ports.

Source: National Day Rally PM Speech 2019

Explain the macroeconomic aims of the Singapore government and discuss the impact of climate change on these aims. [25]

5 In its December 2019 Recent Economic Developments Statement, the Monetary Authority of Singapore noted that unemployment was set to rise. This was mainly due to factors such as weaknesses in external demand and the acceleration in developing and deploying artificial intelligence (AI) solutions in Singapore.

Adapted from: Recent Economic Developments in Singapore, MAS, 6 Dec 2019

(a) Explain how the above-mentioned factors may cause the rate of unemployment to rise in Singapore. [10]

(b) Discuss the effectiveness of existing macroeconomic policies designed to tackle unemployment in Singapore. [15]

6 **(a)** Explain the causes of a balance of trade deficit and a government budget deficit. [10]

(b) Discuss whether a balance of trade deficit or a government budget deficit is more detrimental to households and firms. [15]

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Eunoia Junior College
2021 JC2 H2 Economics Preliminary Examination Paper 2
Suggested Answers and Markers Comments

Question 1

1 Honey's increasing popularity as a natural and heathier sweetener has led to a booming honey market. In the pursuit of supernormal profits, many new beekeepers have subsequently entered the market for honey.

(a) Explain how the above events can first lead to a rise, and subsequently a sharp fall in the price of honey. [10]

New Zealand-produced honey is viewed by consumers to be of high quality. Income is rising in China and many New Zealand beekeepers are choosing to export honey to China instead of selling them domestically.

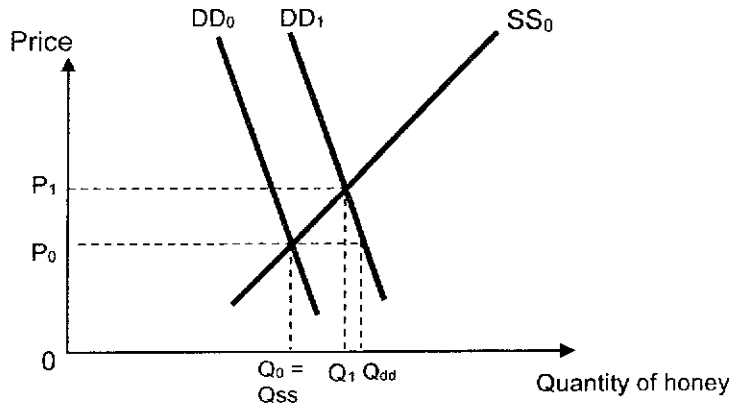
(b) Discuss the likely effects of these changes on consumer expenditure for New Zealand-produced honey in both countries. [15]

Suggested Answer for Part (a)

Approach	**Command Word**	Explain how
	Start Point	Above events: - Increasing popularity of honey - Increase in number of firms
	End Point	1. Rise in price 2. Sharp fall in price
Content and Context	**Content**	Demand and supply changes PED, PES
	Context	Honey

Point 1: Increase in demand has led to a rise in the price of honey

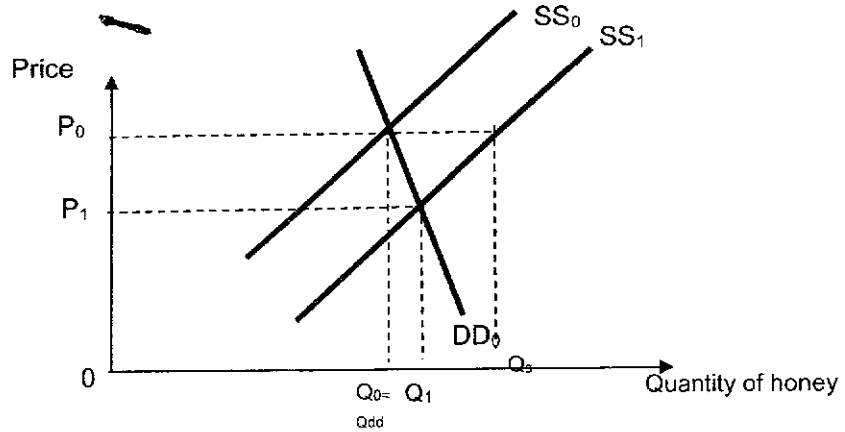
Honey's increasing popularity as a natural and heathier sweetener has influenced the taste and preferences of consumers and resulted in many consumers switching away from the use of traditional sweeteners, such as sugar, and towards consuming honey. This has led to an increase in demand for honey, as shown by a rightward shift in the demand curve from DD_0 to DD_1. At the current price level, P_0, there is a shortage as quantity demanded (Q_{dd}) is more than quantity supplied (Q_{ss}). The shortage will results in an upward pressure on prices, resulting in a fall in quantity demanded (upward movement along the demand curve) and an increase in quantity supplied (upward movement along the supply curve). Prices will continue to increase to P_1 where quantity demand is equal to quantity supplied and the shortage is eliminated. Thus, the increase in price of honey was caused by the increasing popularity of honey.



Point 2: Increase in supply + price inelastic demand for honey has led to a subsequent sharp fall in the price of honey

The increase in demand for honey has led to a booming honey market, marked by greater revenue and profits earned by beekeepers. The presence of supernormal profits will attract new beekeepers (larger number of firms) to join the honey industry, and this is represented by a right ward shift of the supply curve from S_0 to S_1. At the current price level, P_0, there is a surplus as quantity demanded (Q_{dd}) is less than quantity supplied (Q_{ss}). The surplus will result in a downward pressure on the prices of honey. With the raised popularity of honey, and the health benefits associated with consumption of honey, honey may be increasingly seen as a sweetener with a high degree of necessity, resulting in its **demand being price inelastic (PED <1)**. Thus the increase in supply will lead to a more than proportionate fall in price relative to the increase in quantity demanded. Thus, this results in a subsequent sharp fall in price of honey.

(Note: if students explain that "an increase in SS leads to a fall in price and a less than proportionate increase in quantity demanded", this is not incorrect, but it is not angled towards answering the question.)



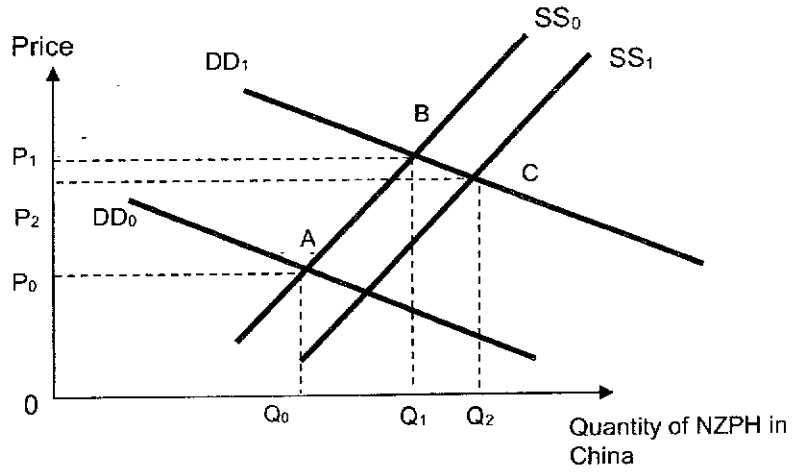
Marking Scheme for Part (a)

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	• For a well elaborated answer that provides 2 reasons (one supply and one demand) for the changes in price of honey • Good application of price elasticity of demand to explain how the increase in supply led to a sharp fall in price • Good use of and reference to demand and supply diagrams as an analytical tool.	8 – 10
L2	• For an under-elaborated answer that provides 2 reasons (one supply and one demand) for the changes in price of honey • Use of and reference to demand and supply diagrams as an analytical tool.	5 – 7
L1	For an answer that has a smattering of points or with major conceptual errors. Poor/lacks application of demand/supply analysis	1 – 4

Suggested Answer for Part (b)

Approach	**Command Word**	Discuss: Balanced + EV
	Start Point	Rising income in China Increasing export of honey to China
	End Point	Consumer Expenditure (P X Q)
Content and Context	**Content**	Demand and supply changes PED, YED
	Context	Honey market in China and NZ

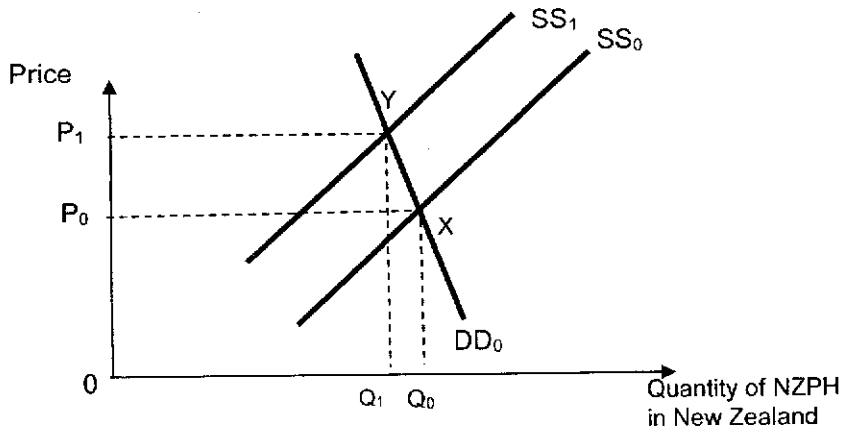
Rising income in China has led to an increase in purchasing power. Since New Zealand-produced honey (NZPH) is viewed to be of higher quality, they are likely to be luxury goods in the eyes of the Chinese consumer i.e. income elastic demand (YED > 1). Thus, the rise in income in China will lead to a more than proportionate increase in demand from DD_0 to DD_1. This will lead to a shortage and prices will rise until a new equilibrium is reached at B. This will result in a rise in equilibrium price of NZPH from P_0 to P_1 and equilibrium quantity from Q_0 to Q_1. Consumer expenditure on NZPH in China will thus increase from $0P_0AQ_0$ to $0P_1BQ_1$.



With rising income in China, this might have improved the NZ beekeepers expectations of future profits in the Chinese market. As such, they have diverted some of the NZPH to China, which is shown by increase in the supply of NZPH from SS_0 to SS_1 in the above diagram. As NZPH is seen of higher quality, it is likely to command a price premium as compared to honey from other countries and thus, its price would take up a larger proportion of income i.e. the demand for NZPH is likely to be price elastic (PED >1). This increase in supply will lead to a fall in price from P_1 to P_2 and a ,more than proportionate increase in quantity demanded from Q_1 to Q_2. Thus, the increase in supply of NZPH in China will lead to an increase in consumption expenditure of NZPH from $0P_1Q_1B$ to $0P_2Q_2B$.

Rising income in China has led to an increase in purchasing power. Since New Zealand-produced honey (NZPH) is viewed to be of higher quality, they are linked to luxury goods in the eyes of the Chinese consumer i..e with income elastic demand (YED > 1). Thus, the rise in income in China will lead to more than proportionate increase in demand from DD_0 to DD_1. This will lead to a shortage and prices will rise until a new equilibrium is reached at B. This will result in a rise in equilibrium price of NZPH from P_0 to P_1 and equilibrium quantity from Q_0 to Q_1. Consumer expenditure on NZPH in China will thus increase from $0P_0AQ_0$ to $0P_1BQ_1$.
Overall, there will be increase in consumer expenditure on NZPH in the Chinese market from $0P_0AQ_0$ to $0P_2Q_2B$.

As NZ beekeepers increase the supply of NZPH to China, this would mean that the supply of NZPH that is being sold in the New Zealand market would decrease, as shown by a leftward shift of the supply curve from SS_{0+} to SS_1 in the diagram below.



NZPH is likely to be a staple in New Zealand with a higher degree of necessity, this would mean that the demand for NZPH in New Zealand is likely to be price inelastic. Thus the fall in supply will lead to an increase in equilibrium price from P_0 to P_1 and a less than proportionate fall in quantity demanded for NZPH from Q_0 to Q_1. This will lead to an increase in consumer expenditure from $0P_0XQ_0$ to $0P_1YQ_1$ in the market for NZPH in New Zealand.

In conclusion, consumer expenditure on NZPH is likely to increase in both China and New Zealand. However it is important to also note that the actual impact could depend on the type of honey that is being produced. For example, New Zealand produces both Manuka and Clover honey (generally seen as inferior with YED < 0). Thus the increase in income in China is likely to lead to a fall in demand for clover honey, leading to a fall in consumer expenditure for this type of honey instead.

In addition, even though income is rising in China, the economic growth rate has been slowing in recent years. Thus, if consumers expect the rise income to continue slowing and subsequently fall, they might hold back consumption of normal goods (such as NZPH), resulting in a fall in demand instead. Thus, consumption expenditure for NZPH in China might fall instead of increase.

Marking Scheme for Part (b)

Level	Knowledge, Understanding, Application, Analysis	Marks
L3	For a well elaborated answer that provides explains the impact of the given changes on consumer expenditure on honey **in both** China and New Zealand Good application of both price elasticity of demand and income elasticity of demand to explain the impacts on the given changes on consumer expenditure on honey. Good use of and reference to demand and supply diagrams as an analytical tool.	8-10
L2	For an answer that provides explains the impact of the given changes on consumer expenditure on honey **in** China and/or New Zealand Application of Price elasticity of demand and/or income elasticity of demand to explain the impacts on the given changes on consumer expenditure on honey.	5-7
L1	For an answer that has a smattering of points or with major conceptual errors. Poor/lacks application of demand/supply analysis	1-4

Level	Evaluation	Marks
E3	Insightful judgment substantiated with analyses, including but not limited to the following considerations: • long vs short term • different contexts • underlying assumptions	4-5
E2	Judgment substantiated with analyses that were explained mostly in the body	2-3
E1	Unsubstantiated judgment	1

2 Sports equipment retailer Adidas announced a new shoe, Futurecraft.Loop, which is made of thermoplastic that can be reused. This will allow Adidas to appeal to consumers who are concerned about their environment and establish a readily available source of production material, especially if Adidas can secure unwanted old sneakers to harvest the thermoplastic.

Discuss whether the development of the new technology by Adidas is always aligned with the profit-maximisation objective. [25]

Suggested Answer

Approach	**Command Word [*Discuss whether*]**	Balanced argument + EV
	Start point [new technology]	• R&D as a non-price strategy
	End Point	• Profit maximising objective • Other objectives
Content and Context	**Content**	Firms and decisions Revenues , Costs
	Context	Alignment of firm's objective to its strategies

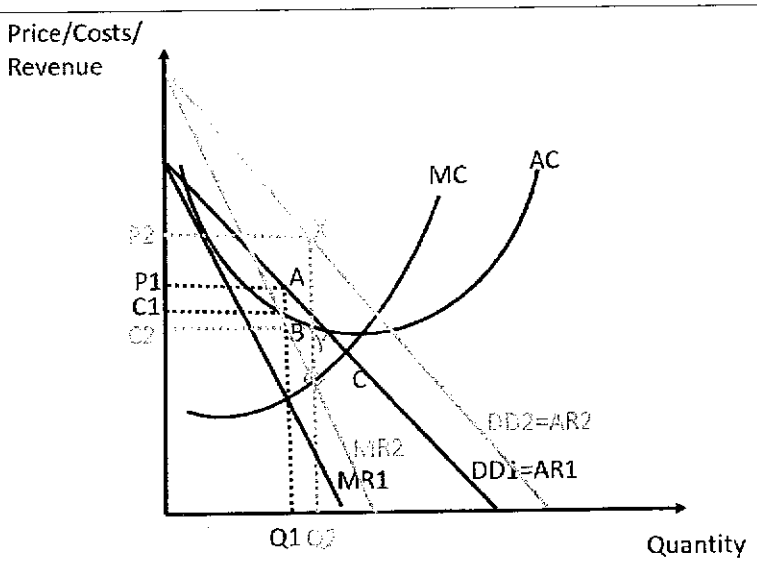
Introduction

Adidas is a firm in a dominant position in its market. While the overarching objective will remain to be maximising profits, Adidas which is enjoying supernormal profits, may in reality be profit satisficier and choose to pursue alternative objectives in the short run. As such, Adidas may engage in different strategies that lend to these alternative objectives.

Thesis: Adidas developed the new technology to achieve objective of profit maximisation

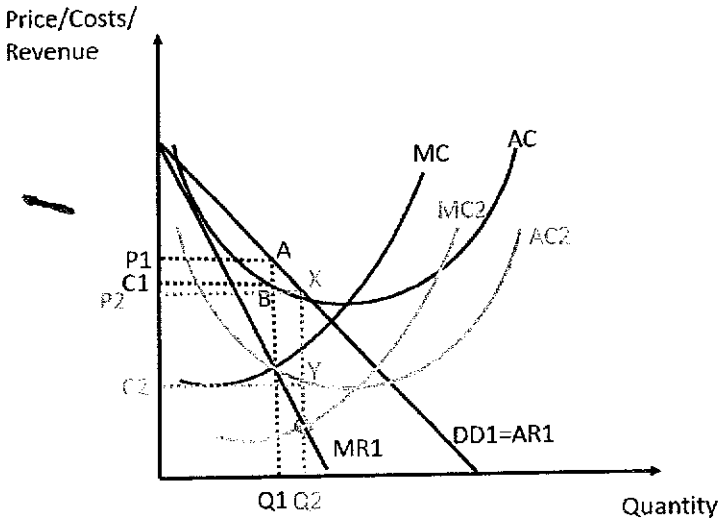
P1: Increase in DD=AR

In developing the new technology, Adidas launched a new footwear that is entirely made of recyclable materials. This suggests the footwear has effectively minimised its carbon foot prints, who caters to the tastes and preferences of consumers who are environmentally conscious. This leads to an increase in demand for the footwear, leading to an increase in DD=AR to AR2. In a corresponding manner, MR will increase to MR2 as well. At MC=MR2, the equilibrium price and output will increase to P2 and Q2, with profits increasing to P2XYC2. As such, development of new technology is aligned to maximising profits.



P1: Fall in AC

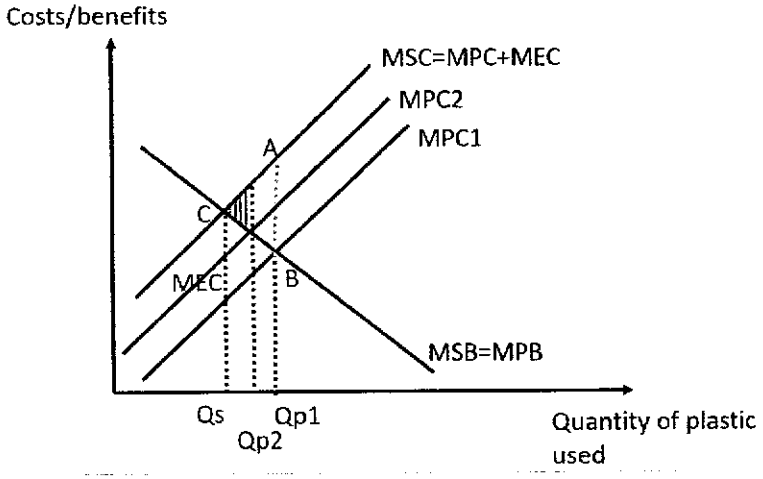
Since the material is fully recyclable, the new technology allows Adidas to have a reliable and stable source of factors of production. This reduces the need for procuring team to source for alternative sources of factors of production. Furthermore, since the material can be reused and reshaped, it further minimises wastage that may occur during production. As such, costs of production for Adidas may fall, leading to a fall in both AC and MC to AC2 and MC2. At MR=MC2, the equilibrium price and output will change to P2 and Q2, with profits increasing to P2XYC2. This aligns to the objective to maximise profits.



Anti-thesis: Adidas developed the technology for other purposes

P3: Environmental concern

New technology allows Adidas to reduce plastic waste. This helps to clean up our environment, particularly the oceans and landfills. Plastic waste takes a very long time period to break down. These wastes will continue to pollute our environment and threaten food and water sources. In developing the new technology, Adidas could achieve an alternative objective to improve its social responsibility as a large corporation. Hence, this new technology could reduce negative externality, benefiting third party who do not consume Adidas' product since the reduction in plastic wastage will reduce external costs. The fall in external costs will to a smaller divergence between MSC and MPC, generating a smaller welfare loss to society, indicated by shaded area below, which is smaller than initial welfare loss of ABC. This serves to improve allocation of resources in the society.



P4: Market dominance/Entry deterrence/reduce contestability

Adidas can file for patent for new technology which will grant the firm exclusive right to use the technology for 15 years. This will allows Adidas to consolidate market share and dominate the market. This is particularly true in current time period as improvement in technology has led to contestability of many markets. This serves to reduce degree of substitutability of other sport retailers to Adidas, and reinforces barriers to entry to deter potential entrants to the market. As DD=AR increases and becomes more price inelastic, Adidas will be able to set a higher price with greater output with its new market position.

Conclusion

While the technology may indeed lead to higher costs of production in the short run, it is more likely to achieve profit maximisation in the long run. No matter which alternative objective Adidas pursued, these alternatives will, most likely, align to profit maximisation in the long run. The competitive nature of sports equipment market coupled with development in technology, means that Adidas cannot be complacent that it is one of the market leaders today. It has to continue to engage R&D efforts to develop new technology/products to reinforce its market position. Furthermore, R&D is only one of many means available to the firm. Adidas has to explore various strategies and consider how these strategies can synergise together to further its position as the market leader. Hence, it is highly likely that Adidas is launching the product as a mean to reinforce product recognition and brand loyalty amongst the consumers, to prevent a fall in its market share.

Marking Scheme

Level	Knowledge, Understanding, Application, Analysis	Marks

L3	Displays full slew of skills across AO1, AO2 and AO3: • A balanced and well-developed answer with different strategies firm may undertake depending on its objectives. • Correct application of strategies to context • Use good examples to support analysis	15-20
L2	Displays AO1 and AO2 skills: • An under-developed answer • Some application of price/non-price/cost reducing strategies but limited in its explanation to address the question.	9-14
L1	Uneven display of AO1 and AO2 skills: • Smattering of points – Lack of clarity, accuracy, and relevance. • Many conceptual errors • No economic framework in analysis • Question requirement is not addressed	1-8
Level	**Evaluation**	**Marks**
E3	Well-reasoned judgement • A well-reasoned judgement regarding strategies of firms and the alignment to profit maximisation • Question any unstated assumptions to arrive at this well-reasoned judgement.	4-5
E2	Largely unexplained judgement • Some attempt to explain judgement	2-3
E1	An unsupported judgement • Most evaluative statements or judgements that are neither supported nor relevant to the specific context of the question	1

3 (a) **Explain why governments intervene in the provision of public goods and when monopoly power is present.** **[10]**

(b) **Discuss the factors that a government should consider when deciding whether to impose price control or pro-competition policy in markets with monopoly power.** **[15]**

Suggested Answer for Part (a)

Approach	**Command word**	Explain why
	Question Type	Causes of Market Failure
	Start point	Sources of Market Failure
	End point	Inefficient allocation of resources
	Context	No context given – candidates to use appropriate contexts
Content	**Content** (Scope of coverage)	Public Good, Market Dominance

Why govts intervene in the provision of public goods:

(i) Non-excludability characteristic, leading to missing market

- A public good is non-excludable in nature, where it is impossible or very costly to exclude non-payers from consuming the good when the good is provided. One example is that of a water dam that can prevent the flooding of a city when water levels rise with global warming. This water dam will protect all individuals, regardless of whether they pay for it. Since those who do not pay will not be excluded (and everyone knows this), **no one has the incentive to pay for the public good**.

- This leads to the **free-rider problem** where everyone will wait for someone else to pay, in the hopes of enjoying the marginal benefit from the water dam without having to pay for it.

- As a result, while a water dam is necessary to protect the city, there will be **no effective demand** for the good, i.e. all consumers will not be willing to pay for the good even if they are able to pay.

- Since there is no effective demand for the good in the market, profit-maximising **firms will make the rational decision to not even enter the market to supply the public good** at all.

- Therefore, if public goods were **left to private firms (free market)**, there would be **no resources allocated to the production of such goods** i.e. Qp = 0.

  ⇨ The free market fails to use price signal to represent consumer's satisfaction of consuming the good
  ⇨ This is why governments take on the role to build water dams, essential for its citizens in low-lying areas.

(ii) Non-rivalrous characteristic, leading to non-provision by free market and hence complete market failure

- A public good is also **non-rivalrous** in nature whereby the consumption by one person does not reduce the amount available to another. In this example, the enjoyment of the protection from the water dam by an individual does not reduce the amount of protection that another individual enjoys.

- The **marginal cost of providing this public good for an additional user is zero.** In other words, the total cost of supplying the good is the same regardless of the number of beneficiaries.

- **For the market to be allocative efficient, the price must equate to the marginal cost of consumption (P=MC)**. Hence the price which consumers should pay is $0.

- As established too under the earlier explanation, rational profit-maximising firms will not produce goods at a price of $0. If left to the free market, no public goods will be produced, and there is *complete* market failure.

Hence, the two characteristics of a public good accounts for why there is complete market failure, necessitating government intervention.

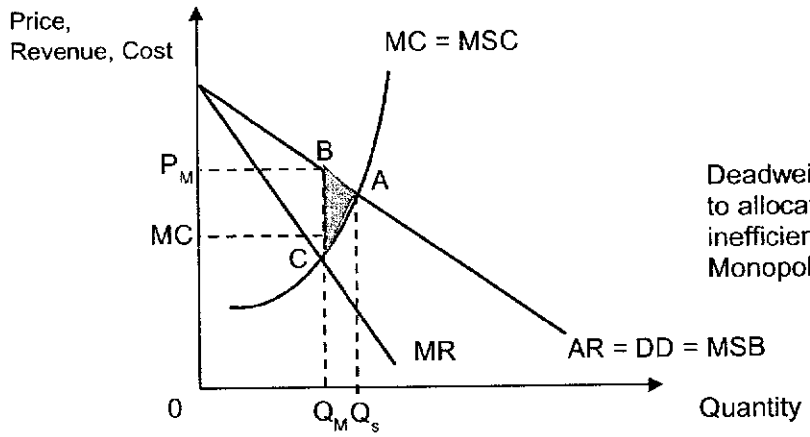
Why govts intervene in a market with monopoly power:

A monopoly refers to a market with a single dominant firm. In a pure monopoly case, there is only a single producer of a good with no close substitutes; enjoying substantially high barriers to entry and imperfect information.

The government intervenes due to the inefficient allocation of resources in the free market.

- A monopoly seeks to maximise profits. In line with the Marginalist Principle, the monopoly will produce where MC = MR. It will not produce where MR > MC since profits can increase with greater output. On the other hand, it will also not produce where MC > MR since doing so would incur more costs than revenue gained. Consequently, the monopoly produces at Q_M (with price at P_M).

  SISTIC, a ticketing service provider is a middleman between event promoters and the ticket buyers by providing a platform to buy and sell tickets. Exclusive agreements with event promoters for events at key venues such as the Esplanade and Singapore Indoor Stadium had no choice but to sell their tickets through SISTIC. Event attendees too had no choice but to book through SISTIC. SISTIC's market share was estimated to be between 85% to 95% of the market in 2009.



- However, this outcome is allocatively inefficient as the **equilibrium price is higher than its marginal cost i.e. P_M > MC**. In other words, society values the good at a higher price than what it costs the monopolist (society) to produce it in terms of the opportunity costs of the resources required to produce it.

- The allocative efficient output is achieved at Q_s where P = MC i.e. where society's valuation equates the opportunity costs involved in the production.

- There is **underproduction** by the amount Q_s - Q_M, with **under-allocation of resources** to the production of the good, resulting in **deadweight loss** (shaded area).

  [The gain in benefits to society by producing units Q_MQ_s is Q_MBAQ_s. The cost to society of producing these units is Q_MCAQ_s. Hence the deadweight loss (shaded area) is ABC.]

Marking Scheme for Part (a)

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For an answer that shows well-developed explanation of the 2 sources of market failure • clear and logical explanation of why the market fails. where public goods and monopoly power exist, leading to allocative inefficiency • that is well-grounded by economic concepts • applied to suitable context	8 – 10
L2	For an answer that shows under-developed explanation • lacking clarity and accuracy at times • not applied to suitable context • Lop-sided coverage of only 1 source: max 5m	5 – 7
L1	For an answer that shows limited knowledge • with listing of points, unexplained statements or descriptive response • many conceptual errors (confusion between NR and NE characteristics, confusion between Qp and Qs, wrong DWL)	1 – 4

	• irrelevant response such as on government policies	

Suggested Answer for Part (b)

Approach	**Command word**	Discuss
	Question Type	Decision-making
	Start point	Policies to mitigate monopoly power
	End point	To achieve efficient allocation of resources
	Context	Monopoly market
Content	**Content** (Scope of coverage)	Benefits, Costs, Constraints wrt Price Control and Pro-Competition Policy

The main factors of consideration in the decision-making process are Benefits and Costs.

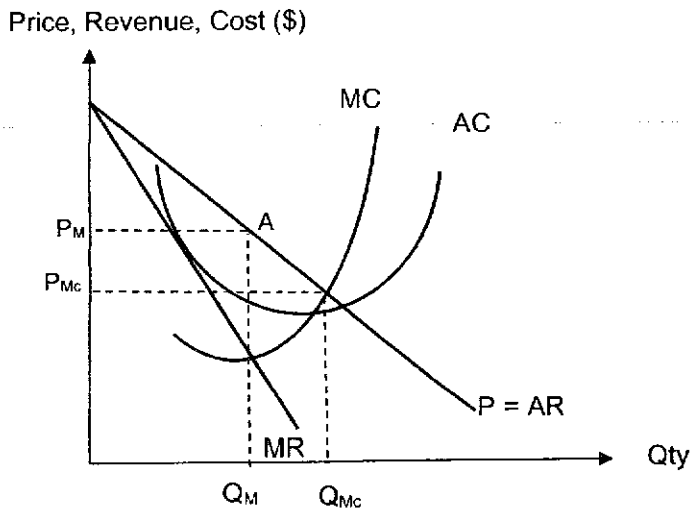
Price control – MC pricing

Explaining **Benefit** by establishing **How** the policy works:

Under MC pricing, the government-regulated price is set equal to the marginal cost of producing the last unit of the output (i.e. P = MC). By regulating the price to be set at P_{mc} , firms will increase output to Qmc in order to maximise profits. In so doing, allocative efficiency is attained since the optimal amount of resources are used to produce the socially-optimal amount of goods. Evidently, deadweight loss is eliminated, achieving the policy intent of addressing market dominance.

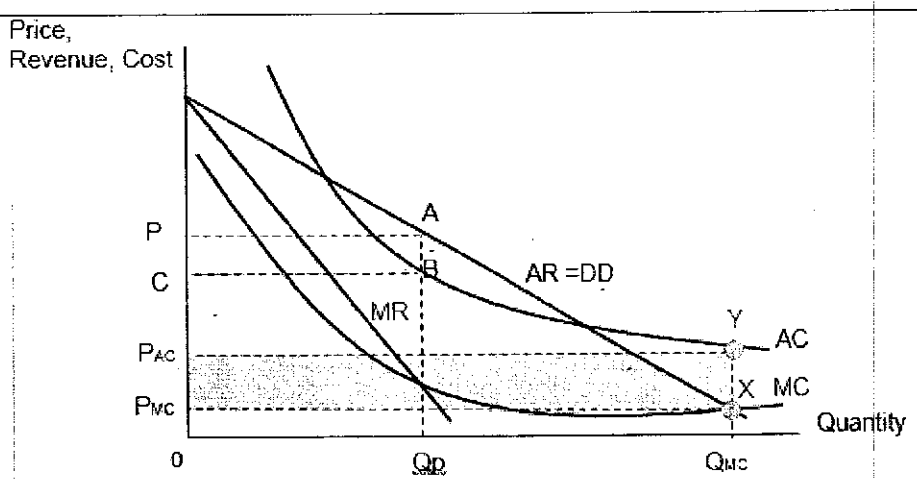
Note: Candidates could analyse using either context/diagram:

- Case of a conventional monopoly:



OR

- Case of a natural monopoly:



The **Benefit/Advantage** of MC pricing as the choice of price control is that the price can be flexibly adjusted by the government in line with the dynamic changes in revenue and costs conditions in the free market. This will ensure that P = MC condition is met, achieving allocative efficiency.

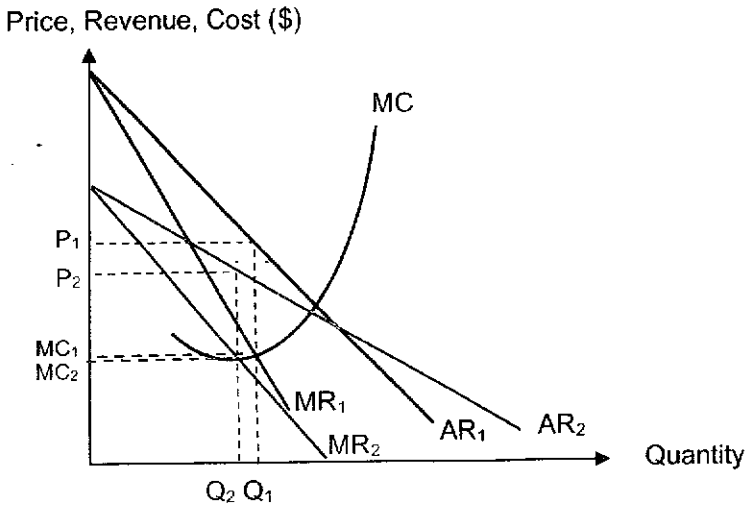
The **Cost/Limitation** of MC pricing is that the monopoly will now make subnormal profits $P_{AC}P_{MC}XY$. While its monopoly power is now mitigated, it is done so at the expense of its survival. If there is no government support, it will have to shut down. Instead of the intended Q_{MC} amount, zero output would result instead, denying consumers of any satisfaction. This is particularly of great concern if the good involved is an essential one like a transport service. To sustain this price control, government subsidy (at least the quantum of the subnormal profit) is of paramount importance.

Pro-competition policy

Explain **Benefit** by establishing **How** the Policy works:

Pro-Competition policy aim to prohibit monopolisation of a market by any firm. For example, any mergers / acquisitions of firms will have to be approved by the regulatory authority. In Singapore, the Competition & Consumer Commission Singapore (CCCS) plays this regulatory watchdog role to ensure that dominant firms do not abuse their power, at the expense of consumers. These laws prevent certain monopolistic behaviour, such as price-fixing practices (collusion) and territorial arrangements between firms in the same industry. In recent times, Grab and Uber proposal to merge was dismissed by CCCS due to the projected overbearing extent of market dominance on the ride-hailing industry.

With more competition, the AR and MR shifts left, with a higher PED value. The profit maximising output falls from Q_1 to Q_2, resulting in price from P_1 to P_2. As a result, the gap between P_2 and MC_2 will now be smaller (as compared to the gap between P_1 and MC_1), reducing the extent of allocative inefficiency issue in society.



Benefit/Advantage:
This policy directly addresses the root cause of the issue – both by curbing the power of existing monopolies or by proactively rejecting any merger request by dominant firms. The policy directly reduces the gap between P and MC. The hefty fines imposed on guilty firms as well as monetary awards given to whistle-blowers are strong deterrents.

Cost/Limitation:
However, it takes considerable amount of time for the government to investigate the lodged cases to prove that indeed the firm(s) involved are abusing market power by price-fixing, etc. The firms in question would naturally withhold crucial information (such as emails and texts), leading to further delays. A case in point is that the case of poultry (a necessity good) sellers in Singapore took 4 years of investigation before they were proven guilty and fined. Meanwhile, consumers continued to be charged a higher price which they assumed to be reflecting the prevailing market conditions. This time lag resulted in the society persistently incurring DWL.

Evaluation – which factor is of greater importance
Possible responses include:
Criterion 1: Likelihood of government failure
Price control is the preferred policy as it is a decisive policy that can be enacted almost immediately. This is especially important for a market concerning necessities. In the case of the poultry market in Singapore, the government could have considered imposing MC pricing in the short run while investigations were ongoing and then impose the Competition Act to the guilty firms in the longer term. This will better look after the interests of low income households who are currently feeling the effects of the economic disruption due to the Covid-19 pandemic.

Criterion 2: Budget constraints (apart from comparing net benefits)
Pro-competition policy is the preferred policy since it involves little expenditure. In fact, the fines collected from non-compliant firms can add on to its budget. Conversely, the government has to incur a long-term expenditure to support the regulated monopoly to ensure that it continues producing at Q_{MC} while still earning at least normal profit. Thus governments that are in a poor

budgetary position would likely prefer pro-competition policy and free up the use of its budget to other pressing issues such as funding supply-side policies to reduce structural unemployment.

Marking Scheme for Part (b)

Level	Knowledge, Understanding, Application, Analysis	Marks
L3	For an answer that shows well-developed analysis of the 2 policies, • comprising the benefits and costs with clarity • that is well-grounded by economic concepts • applied to suitable context	8-10
L2	For an answer that shows under-developed explanation • lacking clarity and accuracy at times • not applied to suitable context	5-7
L1	For an answer that shows limited knowledge • with listing of points, unexplained statements or descriptive response • many conceptual errors (such as confusion between AC and MC pricing) • irrelevant response	1-4
Level	**Evaluation**	**Marks**
E3	• Synthesises the points raised to arrive at well-reasoned judgments and decisions	4-5
E2	• Some attempt at an evaluation or summative conclusion with elaboration/justification (clear criterion) • Relevant insights which lack supporting analysis	2-3
E1	• Unsupported evaluative statement/judgment e.g. on which policy is preferable by a government	1

4 Prime Minister Lee Hsien Loong highlighted that Singapore must prepare for the impact of climate change, which can bring about food shortages and forced migration of displaced populations. As a low-lying island, Singapore is vulnerable to the destructive effects of rising sea levels, which may divert trade to other nations' ports.

Source: National Day Rally PM Speech 2019

Explain the macroeconomic aims of the Singapore government and discuss the impact of climate change on these aims. [25]

Suggested Answer

Approach	**Command Word** • **[*Explain*] and [*Discuss*]**	Explain the different macroeconomic aims. Discuss: positive and negative impacts of climate change on BUGP.
	Start point [climate change]	• **Rising sea levels (-ve impact)** o Fall in $(X-M)_{SG}$ and fall in FDI and hence fall in I_{SG} due to damaged infrastructure and ponding, fall in AD • **Food shortages (-ve impact)** o rise in P_{food}, rise in COP, fall in SRAS • **Forced migration of displaced populations from other nations (+ve impact) (could be –ve also)** - Rise in SS_L, fall in wage and COP, SRAS rise - Rise in quality and quantity of resources, rise in LRAS
	End Point [Singapore economy in future]	Outcomes on BUGP • Economic Growth • Unemployment • Price stability • BOT position
Content and Context	**Content**	Macroeconomic aims
	Context	Singapore

In Singapore, we aim to achieve the following macroeconomic aims of:

1. **Sustainable and inclusive and economic growth**

o Define: Singapore aims for economic growth to be sustained over an extended period of time without inflationary pressures. This will require both **actual and potential growth** to occur. Sustainable growth involves achieving actual and potential growth using renewable resources in ways that do not reduce the quantity or quality if resources over time. Economic growth should also be inclusive so that economic growth increased in **broad-based** across economic sectors and creates productive employment opportunities for the majority of the country's population.

- How to measure: Economic growth can be measured using real GDP growth rate. The use of Gini coefficient helps to measure the income inequality in the economy and the pollution index allows Singapore to see if the economic growth achieved is attained in a sustainable manner.

- Why achieve it: Should Singapore experience continuous both sustainable and inclusive economic growth, there will be an increase in the quantity and quality of goods and services enjoyed, which translates to a higher material and non-material standard of living of its citizens.

2. Low unemployment

- Define: The unemployment rate reflects how fully an economy's **resources are being utilised**. Unemployment refers to the situation where people are unable to find employment, even though they are of legal working age and are both capable and willing to work at the current wage rates. The natural rate of unemployment comprises of both structural unemployment and frictional unemployment

- How to measure: The unemployment rate is the percentage of the labour force that is without a job although they are capable and willing to work at the current wage rates.

$$Unemployment\ rate = \frac{\text{No. of unemployed}}{\text{Labour force}}\ x\ 100\%$$

- Why achieve it: Low unemployment rates are typically desired, as they reflect vibrancy in an economy with high levels of economic activity and hence healthy economic growth. Low unemployment rates also suggest that labour resources are more fully utlitised (economy is producing at a point closer to the PPC) and there is fewer idle resource, leading to productive efficiency and the ability to achieve allocative efficiency.

3. Price stability

- Define: Price stability is concerned about the general price level of goods and services in an economy.

- How to measure: Economists typically consider price stability to be a situation of **low and stable inflation** i.e. a low and sustained rise in the general price level of goods and services in an economy over time, usually a year. Singapore considers price stability to be in the range of $0 - 3\%$. The inflation rate indicates the percentage change in the general price level in an economy and it is calculated using the following formula:

$$Inflation\ rate = \frac{\text{CPI year x} - \text{CPI year (x} - 1)}{\text{CPI year (x} - 1)}\ x$$

- Why achieve it: Low inflation rate is generally considered healthy since it could be indicative of actual economic growth. Low inflation rate also increases business confidence. Firms become more confident about making future plans due to certainty about future price levels and are able to make accurate predictions of costs and revenues.

4. Favourable balance of trade position

- Define: The Balance of Trade (BOT) of a country is a statement of receipts for all economic transactions **concerning trade of all goods and services** between residents of a country with the rest of the world over a period of time, usually a year. BOT shows the overall position of the country for all receipts from the sale of exported goods and services net the expenditure of all imported goods and services i.e. how a country performs in the area of **international trade.**

- How to measure: The Balance of Trade **= Export revenue (X) – Import expenditure (M).** A **surplus** position occurs when the total value of receipts exceed the total value of payments, resulting in a net inflow of money. A **deficit** position occurs when the total value of payments exceed the total value of receipts, resulting in a net outflow of money.

- Why achieve it: A higher net exports (X – M) boosts economic growth with higher real national output and hence lower unemployment rate (greater need to hire more workers to produce). If Singapore become too dependent on export-driven growth, its growth will be vulnerable to the changing landscape of the global economy especially when there is a global downturn. Hence, Singapore aims to achieve a healthy balance of trade position without too much surplus.

Climate change can bring about both positive and negative impacts on the macroeconomic aims of Singapore. We will first look at the negative impacts.

Negative impacts of climate change on Singapore

- ***Rising sea levels*** leads to **lower actual economic growth and higher demand-deficient unemployment**

  - As stated in the preamble, climate change might bring about rising sea levels for a low-lying island like Singapore. Businesses (FDIs) may lose confidence in investing in Singapore, especially since the city-state is prone to flooding. Businesses along Orchard Road have had their merchandise destroyed in the past by abrupt ponding during a series of downpours in Singapore. This would result in a reduction in investment spending (I) by firms.

  - Furthermore, as the Arctic ice cover thaws due to global warming, **countries such as Russia, are promoting an alternative commerce route (Northen Sea Route)** in the wake of the recent closure of one of the world's most strategic waterways, the Suze Cana, which connects Europe and Asia.

  - This would have diverted a significant amount of trade away from Singapore (as we are located along the Suze Canal Route) and reduce demand for Singapore's exported goods and services. Assuming everything else remains constant, our net exports (X-M) may decrease. The combined fall in I and (X-M) would lead to a fall in Singapore's aggregate demand (AD) from AD_0 to AD_1 as shown on Figure 1 below.

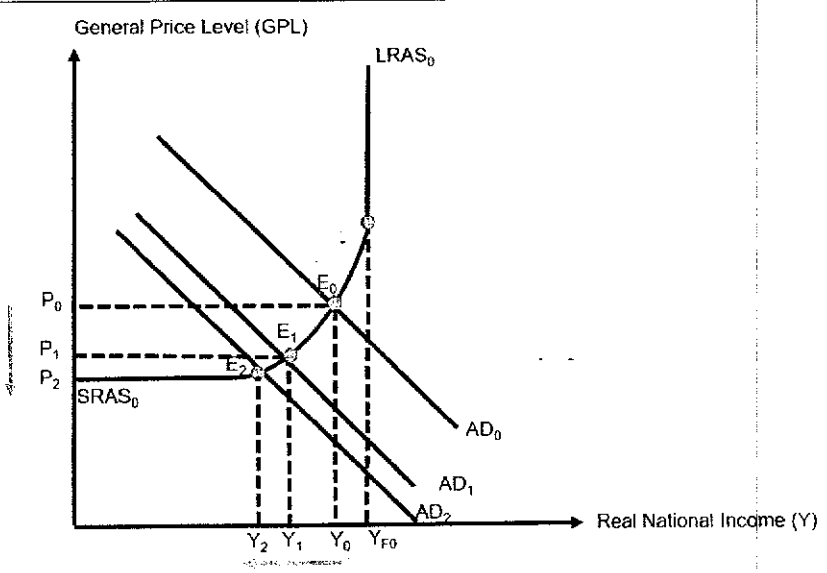


Figure 1: Fall in AD in Singapore due to rising sea levels caused by climate change

- With a fall in AD from AD_0 to AD_1, firms are unable to sell their current level of output, hence stocks of unsold goods will build up. Firms will then reduce production and decrease their demand for factors of production, including labour. As less labour is employed, less national income is earned from Y_0 to Y_1. The initial fall in national income will lead to a further fall in income and induced consumption due to the reverse multiplier effect. As the economy moves into recession represented by a further fall in AD from AD_1 to AD_2, it is now at a lower level of equilibrium national income or national output, Y_2, if the fall in national income is sustained for two consecutive quarters in Singapore economy, this would mean **recession and negative actual economic growth** in Singapore.

- With fall in AD and the cutting back of production, firms will also cut back on the amount of labour used (i.e. fall in demand for labour) since the demand for labour is a derived demand. Hence, climate change will lead to **rise in demand-deficient unemployment** in Singapore.

- The fall in net exports might also **worsen Singapore's balance of trade position** of Singapore as we are highly dependent on external sector for survival. If the balance of trade falls to a deficit and is a persistent one, it might lead to a depletion of our foreign reserves and jeopardise our external stability.

- ***Food shortages*** lead to **lower/negative actual economic growth and rise in cost-push inflation**
  - As stated in the preamble, climate change might bring about food shortages. This is because irregular climatic conditions may harm crops or make

food/agricultural product harvesting even more difficult. As illustrated in Figure 3, this would result in an increase in the economy's overall cost of production as food is an essential component in many food and beverages outlets in Singapore, which would cause a decrease in Singapore's short-run aggregate supply (SRAS).

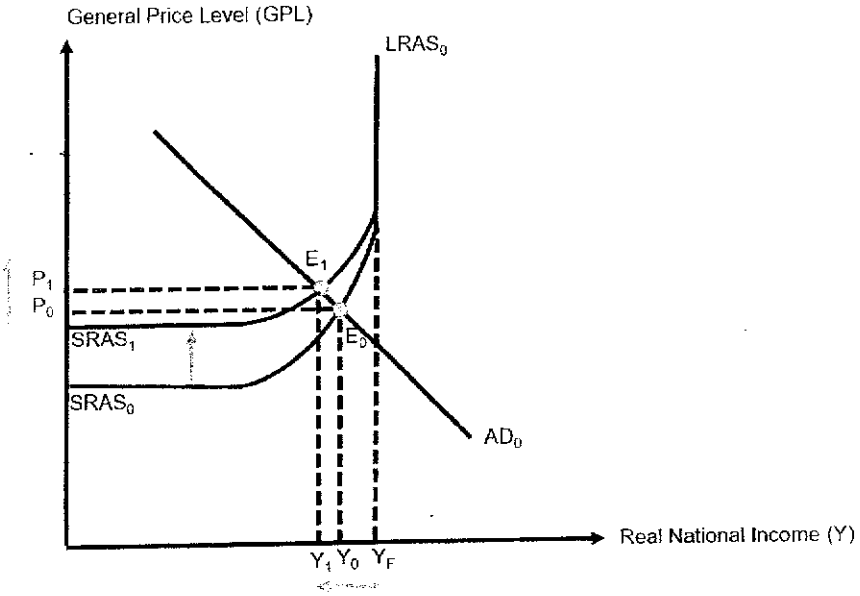


Figure 3: Food shortage leading to cost-push inflation

- The economy is initially at equilibrium with general price level at P_0 and national income/output level at Y_0. If there is an increase in the costs of production at all levels of output, the $SRAS_0$ curve shifts upwards (i.e. to the left) to $SRAS_1$, thereby resulting to inflationary pressure with a higher general price level, P_1. If the increase in price is sustained, **cost-push inflation might set in**. The fall in SRAS also leads to lower equilibrium national income/output at Y_1. If the fall in national output is persistent for two consecutive quarters, this will bring about **negative actual growth in the economy**.

Positive impacts of climate change on Singapore

- Displaced population might enter Singapore which can cause a **lower inflationary pressure and greater potential growth**
  - As a result of climate change, more migrant workers may choose to work in Singapore. Because the melting Arctic ice may result in a colder environment in the northern areas and cooler temperatures in Singapore. As a result, more workers may consider Singapore to be a more favourable place to live and work. The increase in quantity of resources (human capital) will lead to an increase in LRAS in Singapore from $LRAS_0$ to $LRAS_1$ as shown on Figure 4 below.

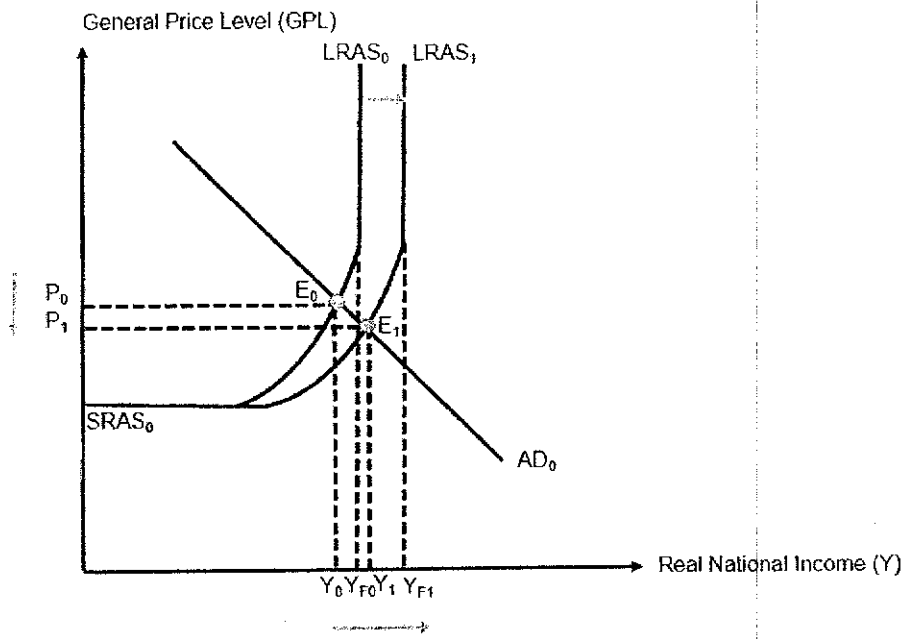


Figure 4: Higher potential growth due to displaced population entering Singapore

- Should the displaced population choose to migrate to Singapore, our quantity of labor resources is expected to increase. With more factor inputs available, the productive capacity of the Singapore will increase, resulting in lesser **inflationary pressure** from P_0 to P_1 and a likelihood of **higher potential growth** from Y_{F0} to Y_{F1} as shown on Figure 4 above.

- Climate change has heightened Singapore's need to enact a number of **measures aimed at mitigating the effects of climate change** and instilling more investor confidence in order to **spur actual economic growth**.
  - Singapore's Public Utilities Board (PUB) has been researching the construction of a deep sea tunnel sewage system and actively engaging with property owners to adopt improved flood defenses. To protect their basement floors against flooding, structural measures such as humps and flood barriers were built. Such proactive efforts by the Singapore government would increase investor trust and encourage additional FDI from nations that may not have similar flood-prevention measures in place. The continuous inflow of FDI means that multi-national corporations (MNCs) will set up more factories and purchase more capital equipment in Singapore. This capital accumulation will lead to increase in investment expenditure and lead to increase in AD from AD_0 to AD_1 as shown on Figure 5 below.

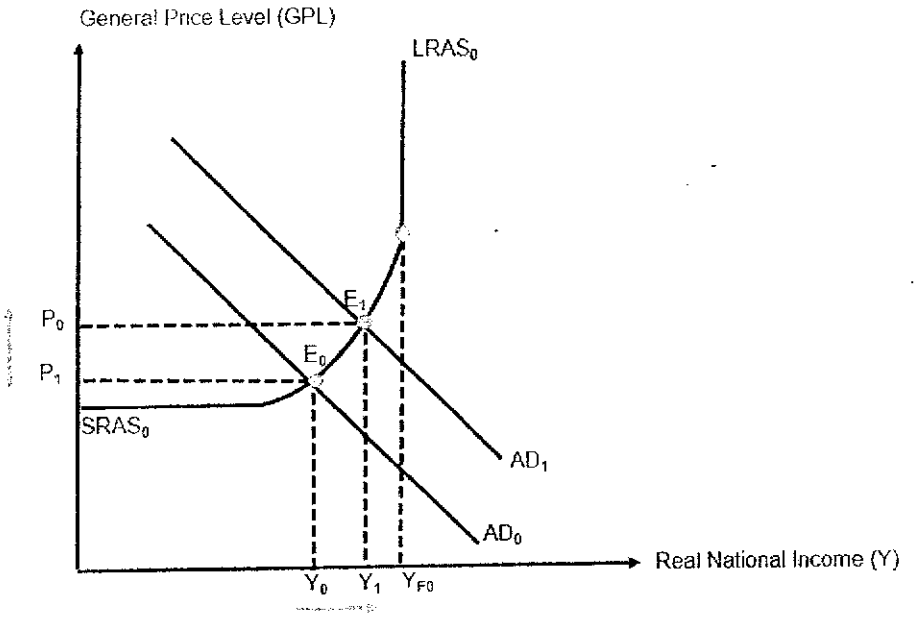


Figure 5: Higher actual growth due to SG's flood-proof measures

- Hence, Singapore's flood-prevention measures, implemented in anticipation of deteriorating climatic circumstances, will assist in maintaining/increasing greater actual economic growth from Y_0 to Y_1.

Evaluation

Stand: Climate change will almost certainly have a detrimental impact on Singapore's macroeconomic goals.

Reasons (comparison): Because of the nature of our economy and the fact that we are a low-lying island, it is quite probable that concerns such as flooding and infrastructure damage will occur. We will lose our competitive edge as a trade hub for nations unless newer and better flood-proof technology is created, and we will see a large drop in net exports and FDI when compared to a bigger, stronger, and resource-rich nation like China.

Context: Because Singapore is a tiny country with limited space, it is doubtful that displaced employees will want to relocate here. Singapore is not an appealing choice for displaced employees as a sanctuary from unstable climate circumstances due to recent tightening of foreign worker regulations and increased unfavourable feelings with foreign workers. As a result, the chances of a favourable influence of migrated workers on our potential growth are slim.

Marking Scheme

Level	Knowledge, Understanding, Application, Analysis	Marks
L3	• Explains at least 3 macroeconomics aims • 2-sided discussion linking the climate change to a range of macroeconomic aims • Accurate and conceptually sound using ADAS framework • Coherent flow and organisation	15-20

L2	• Explains at least 2 macroeconomics aims • 2-sided discussion (both positive and negative impacts) • Used ADAS framework, but with some inadequacy and/or inaccuracy	9-14
L1	• No, or conceptually inaccurate, use of ADAS framework • Lack of clarity, coherent flow and organisation	1-8
Level	**Evaluation**	**Marks**
E3	Insightful judgment substantiated with analyses, including but not limited to the following considerations: • long vs short term • intended vs unintended consequences • other policies • different contexts • underlying assumptions	4-5
E2	Judgment substantiated with analyses that were explained mostly in the body	2-3
E1	Unsubstantiated judgment	1

5 In its December 2019 Recent Economic Developments Statement, the Monetary Authority of Singapore noted that unemployment was set to rise. This was mainly due to factors such as weaknesses in external demand and the acceleration in developing and deploying artificial intelligence (AI) solutions in Singapore.

Adapted from: Recent Economic Developments in Singapore, MAS, 6 Dec 2019

(a) Explain how the above-mentioned factors may cause the rate of unemployment to rise in Singapore. [10]

(b) Discuss the effectiveness of existing macroeconomic policies designed to tackle unemployment in Singapore. [15]

Suggested Answer for Part (a)

Approach	**Command word**	Explain how: well-developed analysis of how the events/triggers in the preamble caused unemployment rate to rise
	Question type	Causes of unemployment
	Start point	Above-mentioned factors: • Weaknesses in external demand • Acceleration in developing and deploying artificial intelligence (AI) solutions
	End point	Rise in unemployment rate
Content and Context	**Content**	AD/AS analysis
	Context	Singapore

Introduction

Define unemployment – Unemployment refers to the situation in which people are unable to find employment even though they are of legal working age and are both capable and willing to work at current wage levels.

Using the factors in the preamble, identify the different types of unemployment in Singapore – demand-deficient/cyclical unemployment and structural unemployment.

Body Paragraph 1: Explain how weaknesses in external demand caused the rate of unemployment to rise in Singapore

As a small and open economy, Singapore is highly dependent on trade and investment flows. The growing tensions between the United States and China/US-China trade war and uncertainty of Brexit caused a fall in global trade flows. This meant that export revenue will decrease triggering a sharp and sustained fall in global business and consumer confidence that led to FDI outflow/reduced FDI inflow into Singapore.

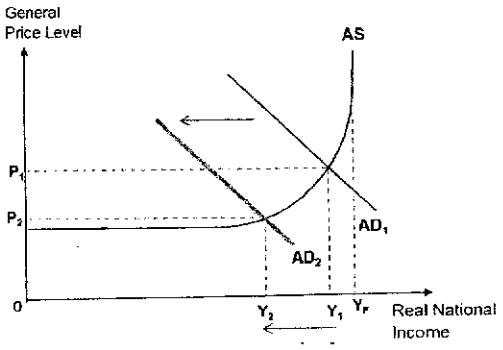
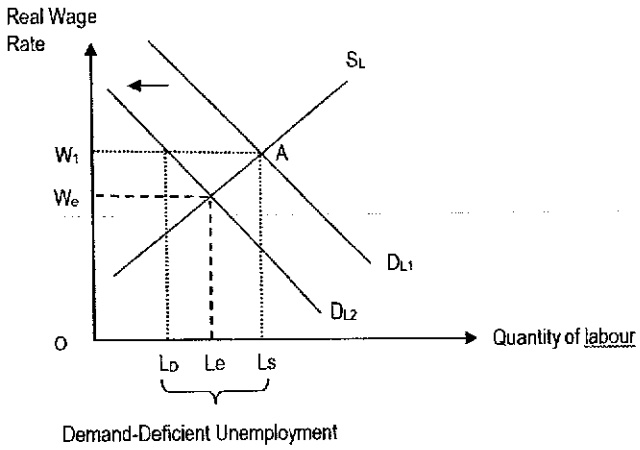


Figure 1: Demand-deficient unemployment due to weaknesses in external demand

With reference to Figure 1, the initial equilibrium national income is at Y1, where AD1 is equal to AS. Weaknesses in external demand → demand for Singapore's exports; fall in FDI inflow/FDI outflow → net exports (X-M) and investment expenditure (I) fall → fall in AD from AD1 to AD2 →trigger reverse multiplier effect → larger fall in AD → unplanned accumulation of stocks → firms reduce production and reduce their demand for factors of production, including labour



S_L: Supply of Labour in the economy
[shows the total number of people who are able and willing to work at each wage rate]

D_L: Demand for Labour in the economy
[shows the total number of workers that firms are willing and able to employ at each wage rate]

Figure 2: Demand-deficient unemployment in the labour market

The labour market is initially in equilibrium at point A, where demand for labour (D_{L1}) is equal to the supply of labour (S_L) at the current wage level of W_1.

As explained, as firms cut back on production as a result of the fall in AD, they also cut back on the amount of labour used (i.e. fall in demand for labour) since labour is a derived demand. This is shown by a leftward shift of the labour demand curve from D_{L1} to D_{L2}.

At the current wage W_1, there is a surplus of workers. Some of the L_s number of workers who are willing and able to take on jobs at the prevailing wage rate W_1, are now unable to find jobs as firms are only willing and able to employ L_D. Hence, there is unemployment at the current wage where the horizontal distance of L_DL_S **represents the level of demand-deficient unemployment.**

Body Paragraph 2: Explain how acceleration in developing and deploying artificial intelligence (AI) solutions in caused the rate of unemployment to rise in Singapore

Advancement in technology drives a relentless change in industries, jobs and skills. As new industries develop around emerging technologies, they give rise to jobs requiring new skills, while making other jobs obsolete. For instance, in Singapore's financial services industry, AI-based automated chat systems that can interact with customers on personal finance queries in real time are now common in several local banking platforms in Singapore. As these labour-saving technological advancements allows for the same level of output to be produced with fewer workers, capital is increasingly being used to substitute labour. Workers who are less proficient in handling the more advanced equipment may become unemployed. At the same time, with the development and deployment of AI solutions, old skills are no longer required and those retrenched do not possess the skills that are in demand. Thus, structural unemployment results because of the mismatch of skills of the unemployed and the existing job vacancies. Hence, labour made redundant in one sector of the economy cannot immediately take up jobs elsewhere, even though there are vacancies there. As a result, some workers become unemployed for a long period of time.

Conclusion

The above-mentioned factors are most likely to result in greater demand-deficient unemployment and structural unemployment, thereby causing the rate of unemployment to rise in Singapore.

Marking Scheme for Part (a)

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed explanation of how the above factors caused unemployment to rise in Singapore. Both types of unemployment (demand-deficient/cyclical unemployment and structural unemployment) should be considered, with good application of real-world examples and appropriate use of economic framework to support the analysis with accurate and well-explained diagrams.	8 – 10
L2	For an underdeveloped answer that attempts to explain both causes of unemployment with appropriate but incomplete economic analysis	5 – 7
L1	For an undeveloped answer that has limited/no application of relevant economic concepts, and/or contains conceptual errors.	1 – 4

Suggested Answer for Part (b)

Approach	**Command word**	Discuss: 2-sided, balanced answer + Evaluation
	Start point	Existing macroeconomic policies designed to tackle unemployment
	End point	Reduce unemployment
Content and Context	**Content**	• AD/AS analysis • HAL framework
	Context	Singapore

Introduction

Reiterate the different root causes of unemployment in Singapore.

State existing macroeconomic policies designed to tackle unemployment in Singapore:

Exchange rate policy – Either reduce the pace of appreciation of Singdollar OR zero appreciation policy

Fiscal policy – cut corporate tax rates, income tax rates and increase government expenditure

Supply-side policies – Spending on infrastructure; investment in human capital

Explain how exchange rate policy works to tackle demand-deficient/cyclical unemployment in Singapore

How exchange rate policy works

The Monetary Authority of Singapore (MAS) operates a managed float regime for the Singapore dollar. The trade weighted exchange rate is allowed to fluctuate within a policy band. In 2019, MAS reduced the pace of appreciation of Singapore dollar, it essentially allows more room for the currency to depreciate to maintain export competitiveness. This results in a fall in the price of Singapore's exports in foreign currencies, assuming PEDx > 1 due to the availability of close substitutes → more than proportionate rise in quantity demanded for exports → rise in export revenue (X) → rise in net exports (X-M)

Explain how fiscal policy works to tackle demand-deficient/cyclical unemployment in Singapore

How expansionary fiscal policy works

Additionally, Singapore maintains low tax rates such as attractive corporate tax rate capped at 17% and provides tax relief. By keeping corporate tax rates competitive, together with a skilled and multilingual workforce and a conducive environment with highly developed infrastructure, Singapore will continue to attract FDI inflows → rise in I

With a lowered income tax rate → disposable income increases → increase in consumption expenditure

Singapore government has also increased government expenditure to raise unemployment rates.

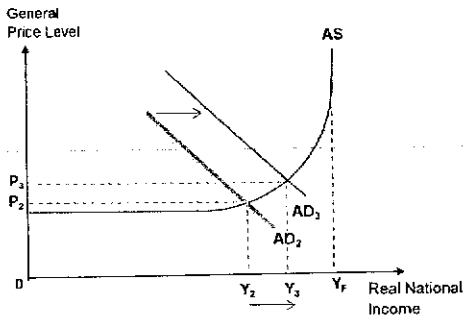


Figure 3: How demand-management policies work to tackle demand-deficient/cyclical unemployment

Rise in (X-M) - E/R policy + I, C & G –fiscal policy → rightward shift of AD from AD_2 to AD_3 → unplanned running down of stocks → firms increase production of goods and services, hire more factors of production, such as labour since labour is derived demand → reduce demand-deficient/cyclical unemployment arising from weaknesses in external demand.

With a rise in RNY → rise in income will lead to rise in income induced consumption via the multiplier effect → AD will rise further → reducing demand-deficient/cyclical unemployment further.

Limitations of exchange rate policy and fiscal policy

However, for a small and open economy like Singapore, these policies may be less effective.

Firstly, reducing the pace of appreciation would lead to a rise in the cost of production due to higher price of imported raw materials. This reduces the effectiveness of the policy to reduce demand-deficient/cyclical unemployment as the rise in AD is dampened by the fall in SRAS and is an impediment especially for countries like Singapore that rely heavily on imported factor inputs.

Furthermore, as Singapore has a small domestic consumer base and a heavy reliance on imports, her MPM and MPS (due to compulsory savings via CPF) are large, making Singapore's size of multiplier small, hence limiting the effectiveness of fiscal policy to tackle demand-deficient/cyclical unemployment in Singapore.

Explain how supply-side policies work to tackle unemployment in Singapore

How supply-side policies work

To tackle demand-deficient/cyclical unemployment

Government spending on improving infrastructure →(increase G) E.g. Development of Cross Island Line (CRL) – Punggol extension - intention to redistribute the travel load from other rail network for efficiency. Improving the infrastructure in a country encourages greater I and greater FDI. Also, an improvement in transport infrastructure will redistribute the labour force better to reduce geographical immobility.

Measures to lower costs of production or improve export competitiveness:

- Investment in human capital E.g. SkillsFuture
- use of better technology through tax incentives E.g. R&D tax benefits

boost productivity of FOPs causing cost of production to fall, improving both the price and non-price competitiveness of exports, resulting in a rise in demand for Singapore's exports and (X-M) rises and AD, as seen in Figure 3.

These measures directly address the root cause of weakness in external demand, thereby tackling demand-deficient/cyclical unemployment in Singapore.

To tackle structural unemployment

Investment in human capital through education and training – Provision of subsidies for retraining and education such as the Continuing Education and Training scheme and SkillsFuture. SkillsFuture is a government initiative that provides $500 credit for all eligible Singapore citizens to acquire new skills or enhance existing ones. It aims to equip workers with the relevant skills, i.e., reduce the mismatch of skills to become employed in industries where labour is in demand. There are SkillsFuture courses such as training to adopt AI and machine learning to increase productivity and AI related skills. Improving education and training will raise workers' productivity as well as increase their job flexibility and occupational mobility. This tackles root cause of the structural unemployment in Singapore arising from the development and deployment of AI solutions.

Limitations of supply-side policies

A key determinant of the effectiveness of supply-side policies like education and training is the attitude and aptitude of the unemployed (or in-employment workers) towards learning new skills and knowledge. Employers' attitude towards these skills upgrading and reskilling opportunities also matter, as some employers may be resistant to investing time to train their employees, to co-funding such training, and/or letting their employees use work hours to engage in training.

Response time lag is huge as it takes time to equip people with skills. It may take several years before the workforce is equipped with the right skills, for them to be effectively employed in the growing industries.

Intermediate Evaluation

Given the nature of Singapore economy, human capital is one of her most important resource. Therefore, investment in human capital is crucial, especially so as Singapore constantly undergoes economic restructuring and structural unemployment would be the main type of unemployment.

Conclusion/Evaluation

The existing macroeconomic policies designed to tackle unemployment in Singapore are effective as they address the main causes of unemployment in Singapore identified in the preamble which are structural and demand deficient unemployment from the weaknesses in external demand and the acceleration in developing and deploying artificial intelligence (AI) solutions

As Singapore sets sight to be a global hub for developing AI solutions on her Smart Nation journey, skills mismatch is likely to continue to be the main cause of unemployment. Coupled with uncertainties in the global economy, supply-side policies are better than fiscal/monetary policies as it is an effective and sustainable long-term policy to tackle both demand-deficient/cyclical and structural unemployment in Singapore.

Marking Scheme for Part (b)

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that: • Provide thorough discussion of at least 2 policies (a combination of ERP/FP + SSP) to tackle **both** demand-deficient/cyclical and structural unemployment • Has a strong application of economic concepts and use of AD/AS analysis, relevant to the Singapore context	8 – 10
L2	For an underdeveloped answer that: • Attempts to explain how ERP or FP works to tackle demand-deficient/cyclical unemployment Application of relevant economic concepts and AD/AS analysis.	5 – 7
L1	For an undeveloped answer that has limited/no application of relevant economic concepts, and/or contains conceptual errors and misinterpretations of the given context	1 – 4
	Evaluation	
E3	For a well-reasoned attempt at substantiating the final stand with a clear criterion for weighing the policies designed to tackle unemployment in Singapore.	4 – 5
E2	For a limited attempt at substantiating the final stand with a clear criterion for weighing the policies designed to tackle unemployment in Singapore.	2 – 3
E1	For unsubstantiated evaluation comments	1

6 (a) Explain the causes of a balance of trade deficit and a government budget deficit. [10]

(b) Discuss whether a balance of trade deficit or a government budget deficit is more detrimental to households and firms. [15]

Suggested Answer for Part (a)

Approach	**Command Word**	Explain
	Question Type	Causes
	Start Point	Possible causes
	End Point	Trade deficit (M>X) Government budget deficit (G>T)
Content and Context	**Content**	Trade deficit Government budget deficit
	Context	Provide your own examples

Introduction: Define concepts

- A balance of trade (BOT) deficit occurs when Export revenue (X) < Import expenditure (M).
- A government budget deficit / fiscal deficit occurs when Tax revenue (T) < Government expenditure (G)

The analysis seeks to uncover the possible underlying causes.

Explain one possible cause for a BOT deficit

- Recession in trading partners: Let's say Singapore's key trading partners, Malaysia, the European Union, the US and China are in recession i.e. negative growth where their real national incomes as measured by their real GDP (gross domestic product) are falling → translate to falling ↓real incomes and thus ↓purchasing power of foreign consumers in these countries → given that Singapore's exports (such as electrical machinery and equipment and pharmaceutical goods) are normal goods with positive income elasticity of demand → ↓demand for SG's exports → ↓export revenue, assume import expenditure constant → ↓net exports (X-M) in value → leads to BOT deficit.

- An appreciation of the country's exchange rate, say the US dollar (US$) means that the price of US$ has increased in terms of another country's currency. The effects of an appreciation of the US$ on the price of its exports (Px) and the price of its imports (Pm) are as follow: ↑Px in foreign currency → ↓Quantity demanded for its exports ↓more than proportionately, assuming value of PEDx > 1 → so ↓exports revenue. Meanwhile, ↓Pm in domestic currency (US$) → ↑Quantity demanded for its imports ↑more than proportionately, assuming value of PEDm > 1 → so ↑import expenditure. As long as the Marshall-Lerner condition is met, where the sum of price elasticity of demand for exports and imports is greater than 1, i.e. (PEDx + PEDm) > 1 so ↓net exports (X-M) in value → leads to BOT deficit.

Explain one possible cause for a government budget deficit

- Government decisions about government expenditure (G) and tax rates (personal income tax and corporate income tax) are dependent on two possible causes - which are the fiscal stance (could be fiscal prudence) and the state of the economy.
- If the economy is in recession (negative growth where real NY falls for two quarters consecutively), the government will use its budget as an enable to implement expansionary fiscal policy.

- So in a recession, govt decides to implement an expansionary FP stance → entails ↑G (such as defence and security, education, infrastructure) and ↓PIT and ↓CIT to boost ↑aggregate demand (AD), via the multiplier process, NY will ↑more than proportionately → ↑actual growth, helping cushion the recession in the economy. When ↑G while ↓PIT and ↓CIT, this would lead to G > T collected, and hence government budget deficit.
- Moreover, the state of the economy is also another possible cause of the government budget deficit → With a recession → as incomes are falling and people earn low incomes, ↓tax revenue (T) collected from PIT and CIT, as well as when people buy less goods and services, ↓T collected from value-added tax or goods and services tax (GST in Singapore) → Furthermore, in other countries like the US, as the level of unemployment increases, the amount paid out in unemployment benefits ↑ → the combined effect of ↓tax revenues and ↑amount paid to unemployment benefits would lead to a government budget deficit.

Marking Scheme for Part (a)

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	• At least one possible cause for BOT deficit and one possible cause for government budget deficit with application to context. • For a good and thorough analytical explanation of the causes of the two deficits. • Good application to the context in terms of the two deficits.	8 – 10
L2	• At least one possible cause for BOT deficit and/or one possible cause for government budget deficit with some application to context. • An under-developed explanation of the causes of the deficits , i.e. Inaccurate/gaps in analysis	5 – 7
L1	• For an answer which shows some knowledge/stating of the causes of either deficit, but largely unexplained, OR an answer that is mostly irrelevant and contains a few valid points made incidentally. • Meaning of the question not properly grasped • Shows some knowledge but there are basic errors of theory or inadequate development of analysis	1 – 4

Suggested Answer for Part (b)

Approach	**Command Word**	Discuss
	Question Type	Consequences
	Start Point	BOT deficit, government budget deficit
	End Point	Households, firms
Content and Context	Content	Households (consumption, purchasing power, savings, employment, SOL) Firms (investment, production, profits)
	Context	An economy, can use Singapore

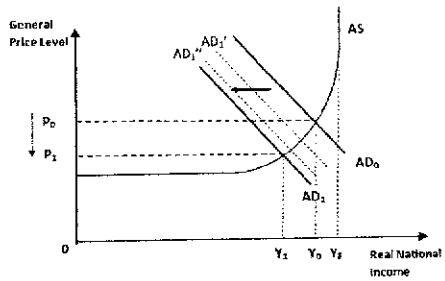
Introduction

A BOT deficit and a government budget deficit has negative consequences on households (in terms of their consumption, purchasing power, savings, employment and SOL) and on firms (in terms of profits, investment and production).

A BOT deficit is detrimental to households and firms

- BOT deficit → ↓Net exports (X-M) → ↓AD → via the reverse multiplier effect → leads to a fall in induced consumption expenditure and hence further falls in AD from AD0 to AD1', AD1'' and AD1 as seen in Figure 1 → this explains the multiplied ↓real national income assuming that the economy is not operating at full employment level.
- As unplanned inventories accumulated and firms cut down on the production of output, firms reduce their derived demand for factors of production including labor → firms will employ less factor inputs to decrease production → ↑demand-deficient unemployment among households → hence detrimental to household in terms of employment.
- As unemployment unfolds, firms also pay households less factor income → when households' income falls, their purchasing power↓ → households ↓consumption expenditure and ↓savings → ↓material SOL now and in the future → hence detrimental to household in terms of consumption, savings, purchasing power and material SOL today and in the near future.

- Figure 1: The effect of a BOT deficit



- As firms (particularly firms in the export industries) cut down the production of output, ↓Q → ↓TR (where TR = Price x Quantity) → assume costs unchanged, ↓profits. With lower business confidence, firms revise downwards the expected rate of returns to investment, so ↓I.

- In the longer term, a BOT deficit reflects the country's worsening export competitiveness relative to other countries → exporting industries decline so detrimental to the firms' in terms of falling profits and even the decision to shut down when P<AC in the long run. Moreover, ↑structural unemployment as low-skilled workers in the declining industries do not have the relevant skills to be re-employed in other industries due to skills mismatch → detrimental to consumers in terms of employment and SOL.

A government budget deficit is detrimental to households and firms

- Government budget deficit can erodes business confidence significantly when the size of the deficit is big relative to the country's GDP and when the deficit is prolonged and becomes persistent → ↓confidence leads to ↓I → ↓AD and ↓LRAS → ↓actual growth + ↑cyclical unemployment in the short run, while ↓productive capacity and hence ↓potential growth in the long run.
  - ↓material SOL and non-material SOL now and in the future so detrimental to households.
  - ↓real incomes → ↓demand for firms' goods & services with YED>0 → ↓TR → ↓profits, assume costs constant.

- When a government incurs a budget deficit, the government has to finance the deficit through borrowing. Borrowing would lead to two consequences:

- Crowding out effect occurs when government competes for private funds with households and firms → ↑interest rate which means ↑costs of borrowing → crowds out consumption (C) and investment (I) → It is more expensive for household to buy big-ticket items such as housing, cars and electronic gadgets so ↓C leads to ↓material SOL. It is also more expensive for firms to borrow for investment with less investment projects being profitable so ↓I.
- To reduce its government budget deficit, the government eventually has to ↑PIT and ↑CIT → as explain in the analysis in part (a) → ↑PIT leads to ↓C and hence household's ↓material SOL while ↑CIT leads to ↓I which would affect firms' profits negatively.

- A government budget deficit is detrimental during a recession / economic downturn because it reduces government's ability to implement expansionary FP (or fiscal stimulus) to stave off recession. Using expansionary FP would worsen its budget deficit → the consequences are a soaring government debt for years to come and significant crowding out effect → Limited ↑AD → government will then have limited demand-management policies to undertake in the short run i.e. expansionary monetary policy centred on interest rate → Both households and firms are worse off during a recession without fiscal stimulus.

Evaluation

Whether a balance of trade deficit or a government budget deficit is more detrimental to households and firms depends on the following factors:

- Nature of the economy: For bigger economies which are relatively less dependent on trade such as the US, a BOT deficit is less detrimental than a government budget deficit to households and firms → because the net exports component (X-M) accounts for a much smaller percentage of the country's GDP than its domestic demand (C and I) → so then a BOT deficit leads to smaller ↓real GDP and hence smaller ↓material SOL for households.

- Cause and effects of the government budget deficit vs those of BOT deficit:
  - A budget deficit might arise from expansionary fiscal policy where ↑govt spending and/or ↓tax revenues → effect of a net injection of income into the circular flow → so a hefty budget deficit can boost / stimulate the country's AD and hence real NY and actual growth. This is opposed to a BOT deficit which leads to ↓AD. But then again, in previous analysis, it is question how effective a budget deficit is in stabilising AD during recession and the effectiveness depends on whether ↑govt spending can crowd-out spending by the private sector, reducing the effect of C and I and hence AD.

Marking Scheme for Part (b)

Level	Knowledge, Understanding, Application, Analysis	Marks
L3	• Thorough knowledge of the facts and theory of the question. Essay focuses on the negative consequences of BOT deficit and government budget deficit on households and firms. • Analysis is well-developed (for example, with the use of ADAS diagrams) • Illustrations and examples are appropriate to a relevant context.	8-10
L2	• Good knowledge of the facts and theory of the question. Essay focuses on negative consequences of BOT deficit and/or government budget deficit on households and firms. • Incomplete analysis or analytical gaps of the negative consequences.	5-7

	• Lacks/No application to context of either deficit or to an economy.	
L1	• Meaning of the question not properly grasped. For example, answers did not establish the negative consequences of BOT deficit and/or government budget deficit on households and firms. • Analysis is largely undeveloped and contains inaccuracies in content, or is one-sided without scope.	1-4
Level	**Evaluation**	**Marks**
E3	For an answer that (so far as required by the question) builds on appropriate analysis to evaluate critically alternative theoretical explanations, contemporary issues, perspectives and policy choices, that recognises unstated assumption and evaluates their relevance, and that **synthesises *prior* economic arguments** to arrive at well-reasoned judgements and decisions.	4-5
E2	For an answer that makes some attempt at evaluation or a conclusion on whether BOT deficit or a government budget deficit is more detrimental to households and firms.	2-3
E1	For an answer that gives an unsupported evaluative statement(s).	**1**