1. The world has spent an estimated $2 trillion on dams in recent decades. Many nations built dams to control floods, improve irrigation, alleviate water shortages and generate low-carbon hydroelectricity. But recent studies have shown that mostly people living upstream are benefiting from the capture of river flows at the expense of those downstream. Dams also cause decay to the surrounding areas leading to large emissions of greenhouse gases such as methane that contributes more to global warming than carbon dioxide.

(a) Use the concepts of public goods and imperfect information to explain why the price mechanism fails to allocate resources efficiently in the provision of dams. [10]

Why may dams be considered as public goods?

- Non-excludable: Once a dam is built and operated, you cannot prevent people who stay near the dam from enjoying flood control even if they have not paid for its construction or operation
- Non-rival: The extent of the flood control does not diminish even if more firms or households move into the area surrounding the dam

How does the existence of public goods lead to market failure?

- Non-excludable: As people who stay near the dam can enjoy flood control without paying, most will be unwilling to pay as they can always free ride on others who do. It is thus not profitable for a firm to build and operate the dam as it will be unable to earn enough revenue to cover its cost. The dam will therefore not be provided in the free market, which means that there is total market failure.
- Non-rival: As the marginal cost of allowing an additional person to consume flood control is zero, the socially efficient price should be zero so that as many people as possible can enjoy the flood control. However, as a profit maximizing dam operator will definitely charge a positive price so that it can make profits, the free market outcome will never be socially efficient.

Why are the forms of imperfect information that may exist in the provision of dams?

- Merit goods: the community staying near the dam may underestimate the extent of the benefits (e.g. improvement in irrigation, alleviation of water shortages and cheaper and less polluting electricity) that they may arises from the provision of the dam
- Demerit goods: the community staying near the dam may underestimate the extent of the cost arising from environmental damage (e.g. emission of greenhouse gasses arising from the decay in the surrounding regions) due to the construction and operation of the dam

How does such forms of imperfect information lead to market failure?

- In a free market, it is possible for a private firm to finance the building and operation of a damn if the revenue that it expects to earn from selling electricity and water exceeds the expected costs of building, operating and maintaining the dam.
- However, to for the dam to be built, the firm would probably need to gain the support and approval of the government, which in turn depends on the support and approval of the people staying near the damn as they will be directly affected by its construction and existence.
- So if the people staying near the damn underestimates the private benefits, than the dam might not be built even when it should.
- Conversely if the people staying near the dam underestimates the private costs, then the dam might be built when it should not have been.

(To score L3, the analysis of public goods and EITHER merit OR demerit goods will be sufficient)

Level	Descriptors	Marks
L3	• Explains why dams could be public goods AND how imperfect information may exist in the provision of damns • Explains how public goods AND such forms of imperfection information lead to market failure • Explanations are rigorous and detailed • Illustrates understanding using examples from the preamble OR other plausible examples related to the provision of damns	8-10
L2	• Lacking in any one of the L3 criterions	5-7
L1	• Largely irrelevant response • Descriptive response which lack application of economic concepts or theory • Serious and pervasive conceptual errors	1-4

(b) Assess the determinants that a rational decision-making government should consider in allocating resources to build a new dam. [15]

What is rational decision making from the perspective of the government?

- A rational decision is one where the expected benefits of the decision outweighs the expected costs
- In general, the main economic aim of a government is to maximize society's welfare and for that to occur, the expected social benefits and costs needs to be considered
- Social benefits and costs include both the private as well as external benefits and costs

What determinants should a rational government consider in deciding to build a new dam?

- Private benefits
  - This refers to the benefits enjoyed by economic agents that are directly derived from the operation of the dam
  - For example, the dam may result in improved irrigation thus benefitting the famers in the surrounding region
  - Such costs can be estimated based on the expected increase in agricultural output and subsequently the expected increase in farmers' incomes

- External benefits
  - This refers to benefits enjoyed by 3rd parties i.e. people who indirectly benefit from the construction or operation of the dam
  - For example, when electricity is generated by the dam, the demand and hence production of electricity from other more polluting carbon sources is lowered, thus reducing global warming so that everyone else in the country benefits from less extreme weather conditions
  - Such costs can be estimated based on the expected power generation capacity of the dam, the carbon intensity of the alternative power generation methods, the reduction in carbon emissions, the reduced probability of adverse weather conditions and the expected damage caused by such adverse weather conditions

- Private costs
  - This refers to costs involved in the construction, operation and maintenance of the dam
  - Construction costs can be estimated by having construction firms to bid for the project while operation and maintenance costs can be estimated by looking at such costs that have been incurred by existing dams

- External costs
  - External costs refer to cost suffered by 3rd parties i.e. people who are indirectly harmed from the construction or operation of the dam
  - For example, damming the river upstream may cause fishermen living downstream to suffer from lower water levels, reduced catch of fishes and hence lowered incomes
  - Estimates of such costs can be obtained by studying similar effects in other countries to calculate the reduction in the fish caught and hence the fall in fishermen income.

How important are these determinants in the context of dam provision?

- The easiest cost to estimate is arguably private costs as the cost of building, running and maintenance have already been incurred by many other existing local or foreign dam projects
- While the potential benefits enjoyed by farmers from improved irrigation and potential costs borne by fishermen from reduced catch can be highly variable depending on how and how much water is redirected, the effects are nevertheless specific and thus a range of estimates can be accurately calculated if high quality studies are commissioned
- The most difficult and thus most important determinant is the external costs incurred as the extent to which the reduction in carbon emissions affects the probability and severity of adverse weather conditions and the resulting damage done in a particular country are largely unpredictable as the global weather system is probably still too complex for scientist to predict with much accuracy

(Besides classifying the determinants as private and external costs and benefits and assessing these determinants based on the availability of information, other forms of classification and criterions for assessment can also be accepted if they are relevant, logical and systematic. Examples of such other determinants include the government's budget constraints and the opportunity costs in terms of alternative government projects that are forgone to finance the building of the dam)

Level	Descriptors	Marks
L3	• Explains the meaning of a rational decision from a government's perspective • Identifies and explains relevant determinants that a government should consider in its decision to intervene in the provision of a dam • Explains using economic concepts or theory • Explains with rigor and detail • Illustrates understanding using examples from the preamble or other plausible examples related to the provision of damns	8-10
L2	• Lacking in any one of the L3 criterions	5-7
L1	• Largely irrelevant response • Descriptive response which lack application of economic concepts or theory • Serious and pervasive conceptual errors	1-4
E3	• Evaluates the relative importance of most of the determinants • Substantiates with relevant and convincing arguments	4-5
E2	• Evaluates the relative importance of one or two determinants • Substantiates with arguments that are not entirely relevant nor convincing	2-3
E1	• Evaluative comments that are not substantiated, poorly substantiated or are not directly relevant to the requirements of the question	1

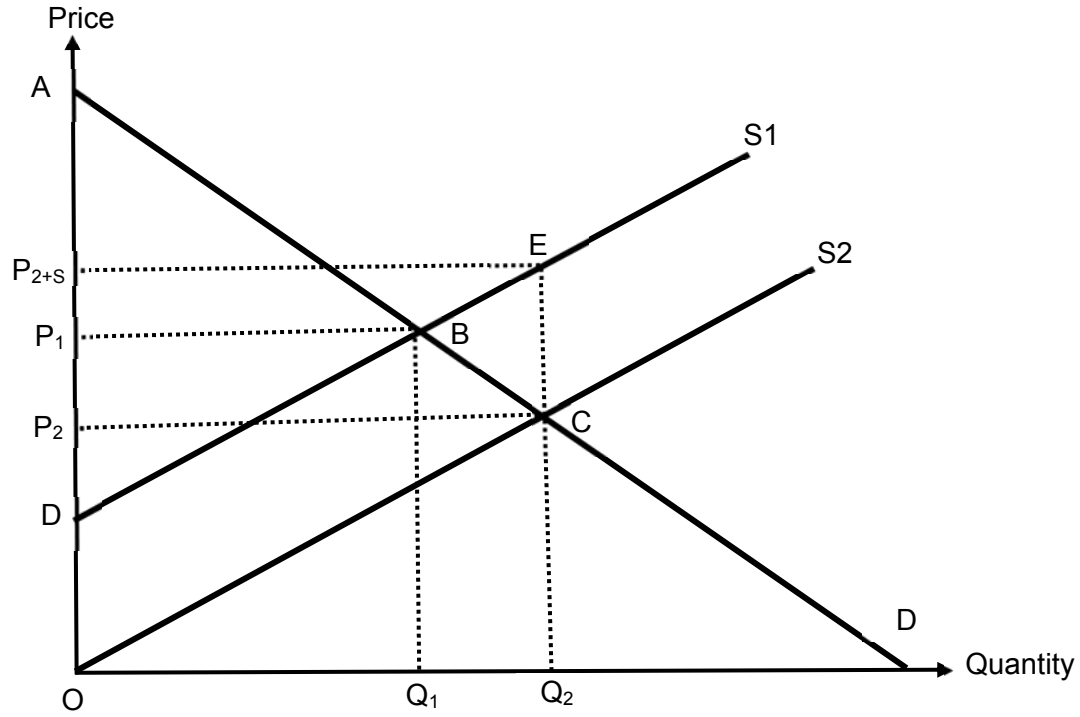
2. In 2014, Malaysia ended its decades-old petrol and diesel subsidies and price caps in an attempt to save billions of dollars and reduce its fiscal deficit. However in 2017, motorists welcomed the government's statement that should the retail prices of petrol and diesel exceed RM2.50 per litre continuously for three months, such measures would be reintroduced.

(a) Explain the impact of a subsidy and a maximum price on consumer surplus and producer surplus. [10]

What is the meant by subsidies, maximum price, consumer surplus and producer surplus?

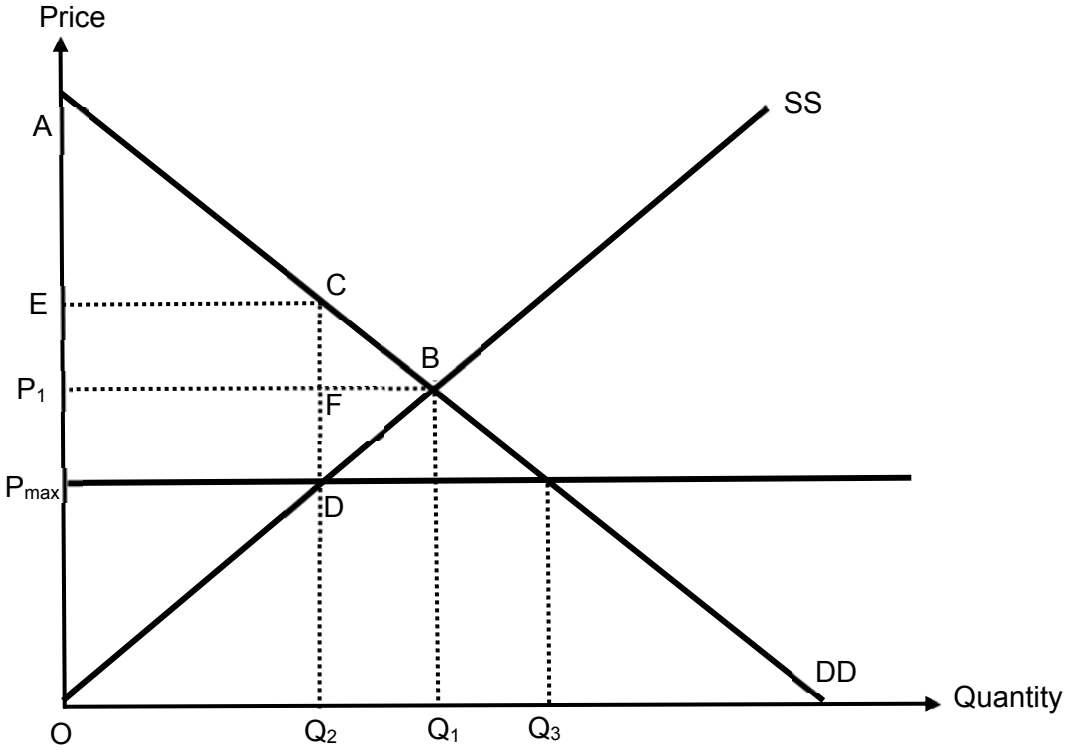
- A per unit subsidy refers to a fixed amount of funding that is provided by the government to firms for each unit of output produced or sold
- An effective maximum price (or price ceiling) is a legally established price that is set below the free market equilibrium price where producers are prohibited from selling above this stipulated price.
- Consumer surplus (CS) refers to the welfare enjoyed by consumers from buying and consuming a good, which can be measured by the area below the market demand curve and above the price line
- Producer surplus (CS) refers to the welfare enjoyed by producers from producing and/or selling a good, which can be measured by the area above the market supply curve and below the price line

How does a subsidy affect consumer surplus & producer surplus?



- A per unit subsidy of $P_{2+S}P_2$ (or EC) shifts the supply downwards from S1 to S2 causing the equilibrium market quantity to rise from Q_1 to Q_2 and the equilibrium market price to fall from P_1 to P_2
- Before the subsidy, CS is equal to area ABP_1 while after subsidy, CS is equal to area ACP_2, thus the increase in the CS is equal to area P_1BCP_2
- Before the subsidy, PS is equal to area P_1BD while after subsidy, PS is equal to area P_2CO which is equivalent to area $P_{2+S}ED$, thus the increase in the PS is equal to area $P_{2+S}EBP_1$
- A subsidy definitely increase both the CS and PS.

How does a maximum price affect consumer surplus & producer surplus?



- Before the implementation of a maximum price, the free market equilibrium price and quantity is P_1 and Q_1 respectively
- With an effective price ceiling being set at P_{max}, the quantity supplied falls to Q_2 while the quantity demanded rises to Q_3, resulting in a shortage of Q_2Q_3
- As the quantity exchanged is limited by the quantity supplied, the amount transacted will be Q_2
- Before the price ceiling, CS is equal to area ABP_1 while after the price ceiling and assuming no black market, CS is equal to area $ACDP_{max}$, thus the change in the CS is equal to area (P_1FDP_{max} – CBF). Thus the change in CS is indeterminate. Based on the above diagram, there is an increase in the CS.
- Before the price ceiling, PS is equal to area P_1B0 while after the price ceiling, PS is equal to area $P_{max}DO$, thus the decrease in the PS is equal to area P_1BDP_{max}

Level	Descriptors	Marks
L3	• Covers BOTH subsidy AND price ceiling • Analyses the impact on BOTH consumer surplus AND producer surplus • Explains with relevant diagrams • Analyses with detail and rigour	8-10
L2	• Lacking in any one of the L3 criterions	5-7
L1	• Largely irrelevant response • Descriptive response which lack application of economic concepts or theory • Serious and pervasive conceptual errors	1-4

(b) In view of rising fuel prices, discuss whether the Malaysian government should reintroduce petrol and diesel subsidies or a price caps to keep fuel prices in check. [15]

Introduction

- Rising fuel prices raises the cost of transportation for motorists in Malaysia, thus reducing the real income and hence material living standards of Malaysian households
- Subsides and price ceiling are alternative polices which can be used to lower fuel prices to counter the effects of such cost-push inflation
- To assess the suitability of the mentioned policies, the concepts of (1) efficiency (2) equity and (3) budgetary as well as political considerations will be used as criterions

Efficiency

- In the absence of market failure, government intervention in a free market will be distortionary and thus result in deadweight (welfare) losses
- In the case of a subsidy, such welfare losses arise from over production and consumption while the welfare losses due to a price ceiling arises from under production and consumption
- For the same amount of price reduction, the main determinant affecting the size of the welfare loss is the price elasticities of demand (PED), where a reduction in the PED value will reduce the welfare losses of a subsidy but raise the welfare losses of a price ceiling (illustrate with diagram)
- Given that Malaysia does not have a well-developed public transport system, the demand for private transport and hence the demand for motor fuels is likely to be highly price inelastic, hence the welfare losses arising from a fuel subsidy is likely to be lower than that of a price cap
- Furthermore, as a price ceiling leads to shortages, resources are required to prevent potential black markets, so the cost of such resources which are used for non-productive activities needs to be factored in as welfare losses when price caps are used

Equity

- As shown in part (a), a subsidy benefits both consumers producers while a price ceiling benefits consumers at the expense of producers
- Given that fuel retailers tend to be large oligopolistic firms like Shell and Petronas, whose shareholders tend to be more well off than the average motorist, a price cap should overall redistribute welfare from the rich to the poor resulting a more equitable outcome
- Similarly, as the PED of motor fuels is likely to be highly inelastic, motorists should also overall benefit much more from the subsidy than petrol companies, so a fuel subsidy is likely to also be equitable as well.

Budgetary and political considerations

- Given that the subsidy requires explicit funding whereas a price cap appears to be cost free, the former should put a greater strain on the Malaysian government's budget than the latter
- However, given that the PED of such fuels is likely to be very low, only a small subsidy quantum is required to achieve a large price reduction, so the total subsidy spending may not be that much
- Furthermore, as the government may need to hire resources to prevent a potential black market, there could be substantial hidden cost associated with the implementation of a price ceiling

- As for political considerations, a subsidy will be definitely more popular than a price cap as both consumers and producers benefit from a subsidy as compared to a price cap where only consumers benefit while producers suffer
- Furthermore, shortages will cause consumers to be frustrated as they need to waste time queuing for petrol, so a price cap will likely be highly unpopular in the long run

Conclusion / evaluation

- As the PED of fuel is likely to be very low in Malaysia, a subsidy will likely be more efficient than a price cap, both policies are likely to be comparatively equitable and the total government spending required for a subsidy may not be that substantial
- Also, given that a subsidy is also likely to be politically much more popular than a price cap, it seems obvious that the former will likely be the policy of choice for the Malaysian government
- However, given that motor fuels are only sold by a few large oil companies in Malaysia, the monitoring and enforcement cost of anti-black market measures are likely to be quite low
- As these policies were initial removed due to fiscal budgetary constraints, I would argue that the Malaysian government would more likely reintroduce price caps than subsidies, despite the latter being overall less distortionary and more popular

Level	Descriptors	Marks
L3	• Analyses the outcomes of BOTH subsidy AND price ceiling • Provides a balance response that argues for and/or against each policy • Analyses the policies using economic concepts or theory • Analyses with detail and rigour • Illustrates with context specific examples	8-10
L2	• Lacking in any one of the L3 criterions	5-7
L1	• Largely irrelevant response • Descriptive response which lack application of economic concepts or theory • Serious and pervasive conceptual errors	1-4
E3	• Takes a stand on which policy should be implemented by substantiating with convincing arguments that compare most of the points covered	4-5
E2	• Takes a stand on which policy should be implemented by evaluating one or two criterions without comparing the relative importance of most of the points covered	2-3
E1	• Evaluative comments that are not substantiated, poorly substantiated or are not directly relevant to the requirements of the question	1

3. International trade is a driving force behind economic growth. According to the World Trade Organization (WTO), there are around 420 regional trade agreements in force around the world in 2016 in which barriers to trade and foreign direct investment are lowered.

(a) Explain the cost savings for firms and industries that might arise when their countries are in regional trade agreements. [10]

Introduction

- Regional trade agreements (RTAs) allow firms and industries in a country to gain tariff free access to the markets of the RTA partner countries
- This raises their exports and hence output, thus enabling them to expand their scale of production to reap internal and external economies of scale (EOS) respectively

Internal Economies of Scale

- When a firm expand its production scale, it is able to enjoy both technical and non-technical EOS
- Technical economies may arise due to factor indivisibilities e.g. some types of capital goods (e.g. an assembly line) are large and costly, so a greater scale allows the fixed cost of purchasing such equipment to be spread over a greater output
- Non-technical economies may arise due to marketing economies, where an increase output enables a chocolate manufacturer to purchase inputs like cocoa beans at a lower cost per unit because it is able to obtain higher bulk discounts from cocoa suppliers

External Economies of Scale

- When an industry expand its output, the firms in that industry may enjoy cost savings in the form of external economies of scale, even if the firm itself does not increase in its size
- For example, when a technologically intensive industry such as pharmaceuticals expands, it becomes profitable for supporting firms that focus on specific types of research (e.g. animal testing) to be set up to supply their services to main pharmaceutical firms
- As such supporting firms supply their services to many firms, they will reap internal economies of scale, which then lowers the cost of producing such research as compared to each pharmaceutical firms operating its own animal testing facility (economies of disintegration)
- It also prevents wasteful duplication as there is now only one research lab shared by many firms as compared to each firm setting up its own lab, thus saving resources for the entire sector

Cost savings due to other reasons

- RTAs allow a firm / industry (e.g. car manufacturer / manufacturing) to gain access to cheaper raw materials (e.g. steel) as well as intermediate inputs (e.g. batteries) as they can now be imported tariff free from the RTA partner countries
- Finally RTAs often involve to the removal of barriers to foreign direct investments (FDI), which enables firms and industries to gain access superior foreign technology and production processes, thus leading to higher productivity and hence lower marginal cost.

Level	Descriptors	Marks
L3	• Analyses how cost savings may arise from internal EOS, external EOS AND at least one other possible reason • Explains using economic concepts and theory • Explains with detail and rigour • Illustrates with relevant examples	8-10
L2	• Lacking in any of the L3 criteria	5-7
L1	• Largely irrelevant response • Descriptive response which lack application of economic concepts or theory • Serious and pervasive conceptual errors	1-4

(b) Discuss the likely impact of regional trade agreements on the profitability and efficiency of firms. [15]

How may RTAs raise the profitability of firms?
- Cost savings mentioned in part (a) → ↓ MC & ↓AC → ↑profits
- Access to larger market → ↑ AR & ↑MR → ↑profits
- Illustrate above scenarios with price setting firm diagram

How may RTAs lower the profitability of firms?
- ↑ Competition from foreign firms → ↓AR and ↓MR and the curves become flatter (more price elastic) → ↓profits
- ↑Foreign competition for resources → ↑ price of resources → ↑ MC & ↑AC → ↓profits.
- Illustrate above scenarios with price setter diagram

How may RTAs improve the efficiency of firms?
- ↑ Foreign competition
  - ↑Availability of substitutes → ↓DD & ↑PED → ↑allocative efficiency (AE)
  - ↓Profits → ↓organisational slack → ↓ X- inefficiency → ↑productive efficiency (PE)
- ↑ Foreign funding for R&D → ↑ dynamic efficiency (DE)

How may RTAs worsen the efficiency of firms?
- Domestic firms wiped out by foreign competition→ ↑DD & ↓PED of foreign monopoly → ↓AE
- ↑Foreign competition → ↓ output/scale of domestic firms → ↓internal EOS → leftwards movement away from MES (min LRAC) → ↓PE
- ↑Foreign competition → ↓profits for domestic firms → ↓R&D → ↓DE.

What is the likely overall impact on profitability and efficiency (evaluation)?

- Much of the outcome on profits and efficiency depends on the ability of local firms to effectively compete with foreign firms when the domestic market is open to greater foreign competition
- As countries generally specialize according to their comparative advantage, firms of a country will more likely benefit from RTAs if the RTA partner countries are at different stages of development or have different resource endowments as they are less likely to be producing competing goods
- In such a situation, the profits and efficiency gains arising from lower costs and larger market size is likely to outweigh the harm done by increased foreign competition
- Hence, I would argue in conclusion that RTAs are more likely raise the profitability and efficiency of firms if RTAs consists of countries that have significantly different economic structures

Level	Descriptors	Marks
L3	• Analyses the impact of RTAs on BOTH profitability AND efficiency • Provides a balance response that argues for AND against each criterion • Analyses the impact using economic concepts or theory • Explains with detail and rigour and using relevant diagrams	8-10
L2	• Lacking in any one of the L3 criterions	5-7
L1	• Largely irrelevant response • Descriptive response which lack application of economic concepts or theory • Serious and pervasive conceptual errors	1-4
E3	• Takes a stand on the overall impact on BOTH profitability AND efficiency • Substantiates stand with convincing arguments that compares most of the points covered	4-5
E2	• Takes a stand on the overall impact on EITHER profitability OR efficiency • Substantiates stand by evaluating one or two points without comparing the relative importance of most of the mentioned points	2-3
E1	• Evaluative comments that are not substantiated, poorly substantiated or are not directly relevant to the requirements of the question	1

4. In April 2016, despite 18th consecutive months of negative inflation arising from lower oil and car prices and a soft property market, the Singapore government did not show any intention of intervening to boost prices. On the other hand, Japan embarked on another round of extensive monetary expansion as the familiar 25 year-old threat of deflation resurfaced after a brief period of consumer price growth.

(a) Explain the possible causes of deflation. [10]

- Introduction
  - Deflation is defined as a sustained decrease in the general price level.
  - The aggregate demand (AD) and aggregate supply (AS) model will be used to explain how deflation occurs.

Decrease in AD	**Increase in SRAS / LRAS**

• AD ↓ due to a ↓ in any of the 4 AD components
  ○ ↓Consumption - ↓confidence, ↑ interest rates, ↑ income tax
  ○ ↓Investment – ↓confidence, ↑interest rates, ↑corporate tax
  ○ ↓Government expenditure - austerity measures
  ○ ↓Net exports – recession in export markets, appreciation of currency
• Explain with diagram showing how ↓AD → ↓GPL
	• SRAS ↑ due to ↓unit cost of production e.g.
	  ○ ↓Prices of imported FOPs like oil
	  ○ ↑Labour productivity > ↑wages.
	• ↑ Quantity or quality of FOP → ↑LRAS → if AD unchanged → ↓GPL e.g.
	  ○ Finding new deposits of natural resources like crude oil
	  ○ Excessive investment in productive capacity in previous time periods
	• Explain with diagram showing how ↑SRAS and ↑LRAS → ↓GPL

Level	Descriptors	Marks
L3	• Covers BOTH demand AND supply factors • Explains using economic concepts or theory • Explains with detail and rigour • Illustrates with relevant examples AND diagrams	8-10
L2	• Lacking in any of the L3 criteria	5-7
L1	• Largely irrelevant response • Descriptive response which lack application of economic concepts or theory • Serious and pervasive conceptual errors	1-4

(b) Discuss the different approaches used by the two governments. [15]

Introduction

- Governments are tasked with steering their respective economies to achieve various macroeconomic goals, of which one is price stability.
- As deflation results in price instability, governments should intervene if this problem is serious.
- This essay will analyse the reasons that the Singapore and Japanese governments would likely have considered in deciding on their respective approaches in dealing with the types deflation that they had experienced.

Japan

- Why was there a need for intervention?
    - In the Japanese case, the decision to use expansionary monetary policy implies that deflation was caused by fall in AD.
    - Such deflation was harmful because the fall in GPL was accompanied by negative growth
    - The preamble further states that deflation had been a threat for 25 years, which would likely have resulted in a deflationary spiral where consumers withheld consumption as they expected prices to fall further
    - Such self-reinforcing deflationary pressures would have cause continued declines in AD, thus leading to prolonged contractionary pressures.

- How does Japan's policy approach work?
    - This fear of a renewed deflationary spiral prompted the Japanese government to react aggressively, thus embarking on a new round of "extensive" monetary expansion.
    - This typically involves the lowering interest rates with the aim of incentivising borrowing by households and firms for consumption and investments
    - Lower interest rates also lead to hot money outflows which causes the Yen to depreciate
    - Assuming that demand for exports and imports are both price elastic, a deprecation of the Yen will cause Japan's net exports to rise
    - Rising consumption investment and net exports will then boost AD
    - If the economy is operating near or at full employment, general price levels will rise in tandem, thus countering deflation.

- What are the limitations of such an approach?
    - If current interest rates are already very low, e.g. less than 1%, there's limited room for interest rates to be cut further
    - With the prolonged threat of deflation mentioned in the preamble, consumer and investor confidence in Japan is likely to be weak, so the demand for consumption and investment are likely to be highly interest inelastic

Singapore

- Why did the Singapore government not intervene?
    - From the preamble, the deflation experiences by Singapore was partly due to falling oil prices
    - As Singapore imported crude oil from overseas, falling oil prices would translate to a decrease in energy and transportation costs and thus shifting the SRAS downwards
    - Such deflation was benign because actual growth would rise even though GPL had fallen, so there was arguably no need for the Singapore government to intervene.

    - Singapore's deflationary pressures also stemmed from falling property and car prices
    - This could have caused headline inflation to be negative but core inflation to remain positive
    - Property and car prices in Singapore are volatile due to proactive government policies to manage property bubbles and vehicle population (and therefore traffic congestion)
    - As only a small fraction of the population would be buying cars or property at any given point in time, the impact of changes in property and car prices would have minimal impact on the real purchasing power of most Singaporean residents
    - Hence core inflation would have been a better measure of the deflationary pressures that were actually being experienced by most Singapore firms and households
    - Unless core inflation was also negative, negative headline inflation was not good enough a reason to warrant any government intervention

- Why could be some concerns regarding Singapore's lack of intervention?

    - Property and cars are likely to be highly income elastic as such goods tend to be seen as luxury goods given the acute scarcity of land in Singapore.
    - Hence falling property and car prices could be useful indicators of a weakening in the economic outlook of households
    - A lack of intervention could mean that the Singapore government might have failed to accurately interpret current and future economic expectations and thus missed the opportunity to counter a potential economic downturn

Conclusion (evaluation)

- Given the weak economic outlook in Japan, monetary expansion is unlikely to be effective in countering deflation due to high interest insensitivity
- Expansionary fiscal policy would probably be better as it would have at least guaranteed a first round of injection in terms of public spending
- However, given the high public debt levels of the Japan, running even larger fiscal deficits might result in serious debt related problems in the future
- Hence monetary expansion is in my opinion the only feasible option at this juncture

- As falling oil prices were beneficial to the Singapore economy while falling car and property prices were unlikely to have much impact on price expectations, the Singapore government's position of non-intervention was arguably warranted
- Although car and property prices could have be useful bell-weathers for future economic performance, there are other economic indicators such as consumer and business perception surveys which are more targeted and hence more accurate
- Unless such indicators also suggested that the Singapore was heading for a potential downturn, my view is that the current non-interventionist approach was in general economically justifiable

Level	Descriptors	Marks
L3	• Analyses the approaches of BOTH Japan AND Singapore • Provides a balance response that analyses the rationales, mechanics AND limitations of such approaches • Analyses the approaches using economic concepts or theory • Explains with detail and rigour • Illustrates with relevant diagrams and examples	8-10
L2	• Lacking in any one of the L3 criterions	5-7
L1	• Largely irrelevant response • Descriptive response which lack application of economic concepts or theory • Serious and pervasive conceptual errors	1-4
E3	• Takes a stand on the suitability of the approaches employed by BOTH Japan AND Singapore • Substantiates stand with relevant and convincing arguments that compares most of the points covered	4-5
E2	• Takes a stand on the suitability of the approaches employed by EITHER Japan OR Singapore • Substantiates stand by evaluating one or two points without comparing the relative importance of most of the mentioned points	2-3
E1	• Evaluative comments that are not substantiated, poorly substantiated or are not directly relevant to the requirements of the question	1

5. In 2016, the Singapore government raised the personal income tax rate for the top income earners of a chargeable annual income of over S$320,000 from 20 percent to 22 percent. At the same time, those who earned a chargeable annual income of S$28,000 and below automatically received a higher amount of Goods and Services Tax (GST) cash voucher. Besides, the government expected a deficit of S$5.6 billion (1.4% of GDP) and thus Fiscal Year 2016 was an expansionary budget.

Assess the importance of automatic fiscal stabilisers in determining whether discretionary fiscal policy should be used to reduce business cycle fluctuations and achieve inclusive growth in Singapore. (25m)

How do automatic fiscal stabilizers reduce business cycle fluctuations and achieve inclusive growth?

- During a recession, household income falls, which pushes them into lower tax brackets, thus causing them to pay proportionately less taxes
- This who become unemployed will probably not pay any income tax but will instead receive welfare payouts in terms of unemployment benefits.
- Such reduction in withdrawals and increases in injections have expansionary effects on the economy, which reduces the severity of the economic downturn.

- When the economy is booming, households' incomes rise thus pushing them up into higher tax brackets which causes them to pay proportionately more taxes
- The formerly unemployed have now found jobs and will stop receiving unemployment benefits
- Such hikes in withdrawals and declines in injections will instead have a contractionary effect on the economy, which helps to bring down inflationary pressures

- Automatic stabilizers work because of the progressive nature of income taxes and welfare benefits, which are fiscal structures that are primarily used to reduce income inequality by redistributing income from the rich the poor, i.e. to promote inclusive growth
- By raising the progressiveness of such fiscal structures, the impact on promoting inclusive growth and reducing business cycle fluctuations will be enhanced

How can discretionary fiscal policy be used to reduce business cycle fluctuations and achieve inclusive growth?

- During a recession, raising government spending and cutting direct taxes like personal income taxes and corporate taxes will stimulate consumption and investment respectively
- Through the multiplier effect, these initial injections into the economy will result in subsequent rounds of induced consumption, causing AD and output to rise even further

- When there is demand-pull inflation, government spending can be intentionally curtailed and direct taxes intentionally raised to curb consumption and investment
- Through the multiplier effect, these initial withdrawals will result in subsequent rounds of reduction in induced consumption, causing AD and output to fall even further

- To promote inclusive growth, discretionary fiscal policies can be used in a way that also aims to achieve more equitable outcomes
- For example, when combating a recession, the government can choose to provide more transfers to and collect less taxes from lower income households
- When fighting demand pull inflation, the government can raise income tax rates only for the higher income tax brackets and reduce spending that tend to benefit the rich more

How strong and progressive are Singapore's automatic stabilizers?

- As economies with very progressive taxation regimes and generous welfare payments have stronger stabilizing effects, the need for discretionary policies to achieve macroeconomic stability is therefore reduced
- In the case of Singapore, the government does not provide any unemployment benefits and personal income tax rates are low and much less progressive as compared to many other developed countries
- This means that the stabilizing and redistributive effect of Singapore's fiscal structure is quite weak so there is a greater need for discretionary fiscal policy to be used to reduce macroeconomic fluctuations and promote inclusive growth

Why does the Singapore government then not rely on discretionary fiscal policy to reduce business cycle fluctuations and achieve inclusive growth?

- The Singapore government does not use discretionary fiscal policy to reduce macroeconomic stability because it has a very small injection multiplier
- The small multiplier is due to high marginal propensities to import and save as Singapore lacks natural resources and has a system of enforced (CPF) savings that are used for the financing retirement and housing
- Instead of fiscal policy, Singapore relies on short run supply-side polices like wage subsides to help minimize unemployment during a economic downturn and revalues its currency to combat both demand-pull and more importantly imported cost-push inflation
- As for inclusive growth, instead of giving large handouts to the poor, the Singapore focuses on training and upskilling to enable low wage workers to raise their productivity and upgrade to higher value-added and hence better paying jobs

How important are automatic stabilizers in determining the use of discretionary fiscal policy in Singapore to reduce business cycle fluctuations and achieve inclusive growth?

- Although her automatic stabilizers are weak, Singapore does not rely on discretionary fiscal policy largely because of its small multiplier value
- Hence automatic stabilizers are in my opinion, an insignificant factor in determining Singapore's choice of macroeconomic stabilization policies
- As for inclusive growth, the main reason for relying on supply-side policies rather than discretionary redistributive fiscal measures is that the former will likely to have a longer lasting impact on raising the welfare of the poor that the mere giving of handouts
- Thus, automatic stabilizers are also arguably unimportant in determining Singapore's choice of policies to achieve inclusive growth

Level	Descriptors	Marks
L3	• Addresses BOTH aims of reducing business cycle fluctuations AND achieving inclusive growth • Analyses how automatic stabilisers AND discretionary fiscal policy can be used to achieve such aims • Analyses other possible reasons for Singapore's choices of policies used to achieved such aims • Explains using economic theory or concepts • Explains with detail and rigour • Illustrates with relevant diagrams and examples	16-20
L2	• Lacking in any one of the L3 criterions	10-14
L1	• Largely irrelevant response • Descriptive response which lack application of economic concepts or theory • Serious and pervasive conceptual errors	1-8
E3	• Evaluates the importance of automatic fiscal stabilisers by comparing it with other plausible reasons for Singapore's policy choices	4-5
E2	• Evaluates the importance of automatic fiscal stabilisers without comparing with other plausible reasons for Singapore's policy choices	2-3
E1	• Evaluative comments that are not substantiated, poorly substantiated or are not directly relevant to the requirements of the question	1

6. In recent years, the refugee crisis is slowly undoing decades of economic integration by generating a new wave of protectionism that is believed to have shocked the global economy.

Discuss the likely impact of protectionism on the economic growth, inflation and standard of living of an economy.[25]

Positive impact on the economy	**Adverse impact on the economy**
Perpetrator country • ↓M → ↑(X-M) → ↑AD → ↑growth & ↓unemployment → ↑material SOL • Protect sunrise industries → gain CA over time → ↑ X of higher value-added goods → ↑terms of trade →↑material SOL • Protect sunset industries → prevent structural unemployment → prevent material SOL from ↓g • ↓Unemployment → less stress for the unemployed → ↑non-material SOL	Perpetrator country • ↓ Access to cheaper or better imported capital goods → ↓ quantity or quality of K → ↓LR growth → slower ↑ in material SOL • Tariffs on imported inputs → ↑costs of production → ↓SRAS → ↑inflation, ↓ growth & ↑unemployment → ↓ material SOL. • ↓M → ↑(X-M) → ↑AD → ↑DD pull-inflation → → ↓material SOL • ↓Intra industry trade → ↓ product variety → ↓ material SOL • Tariff diagram: ↓consumer surplus and overall welfare losses → ↓ material SOL. •
Victim country • ↓X →↓AD → ↓DD-pull inflation → slower ↓ in material SOL • ↓Inflation → less stress for all households especially the poorer ones who find it harder to cope with inflation → slower ↓ in non-material SOL • ↓ X for countries that export goods which cause pollution when produced → ↓externalities →↑non-material SOL	Victim country • ↓X →↓AD → ↓ growth & ↑ unemployment → ↓ material SOL
All countries • ↓Economic outlook → ↓I → ↓capital accumulation → adverse effect on LRAS →↓potential growth → slower ↑ in material SOL. • Retaliation → ↓ X and AD for all countries involved in the trade war → ↓ material SOL • ↓ Specialisation according to CA → ↓ consumption possibilities → ↓material SOL.	
Evaluation: • In my opinion perpetrator countries are more likely to benefit if their protection is targeted at specific sectors with the aim gaining CA or preventing structural unemployment as compared to indiscriminate tariffs on all imports • Other the other hand, victim countries are more likely benefit if their economies are overheating but more likely to suffer if they are already facing an economic downturn • However, given that protectionism hampers specialisation according to CA which reduces overall efficiency in global resource allocation and also tends to lead to mutually destructive trade wars, I would argue that the overall impact is more likely to be adverse than beneficial in the long run.	

Level	Descriptors	Marks
L3	• Analyses the impact on growth, inflation AND living standards • Analyses impact on BOTH material AND non-material living standards • Provides a balance response that cover BOTH positive AND adverse impacts • Explains using economic concepts or theory • Explains with detail and rigour	16-20
L2	• Lacking in any one of the L3 criterions	10-14
L1	• Largely irrelevant response • Descriptive response which lack application of economic concepts or theory • Serious and pervasive conceptual errors	1-8
E3	• Takes a stand on the overall impact of protectionism on an economy • Substantiates with relevant and convincing arguments that compares most of the points covered	4-5
E2	• Takes individual stands on impact on growth, inflation OR livings standards • Substantiates by evaluating one or two points without comparing the relative importance of most of the points covered	2-3
E1	• Evaluative comments that are not substantiated, poorly substantiated or are not directly relevant to the requirements of the question	1