TAMPINES MERIDIAN JUNIOR COLLEGE

JC2 PRELIMINARY EXAMINATION

H1 ECONOMICS **8823/01**

Paper 1 **12 September 2022**

3 hours

Additional materials

Two Answer Booklets

READ THESE INSTRUCTIONS FIRST

Write your name and Civics Group on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, glue or correction fluid.

Answer **all** questions.

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

Hand in Question 1 and Question 2 **separately.**

Begin Question 1 and Question 2 on a **new** answer booklet.

This document consists of 8 printed pages.

Answer **all** questions.

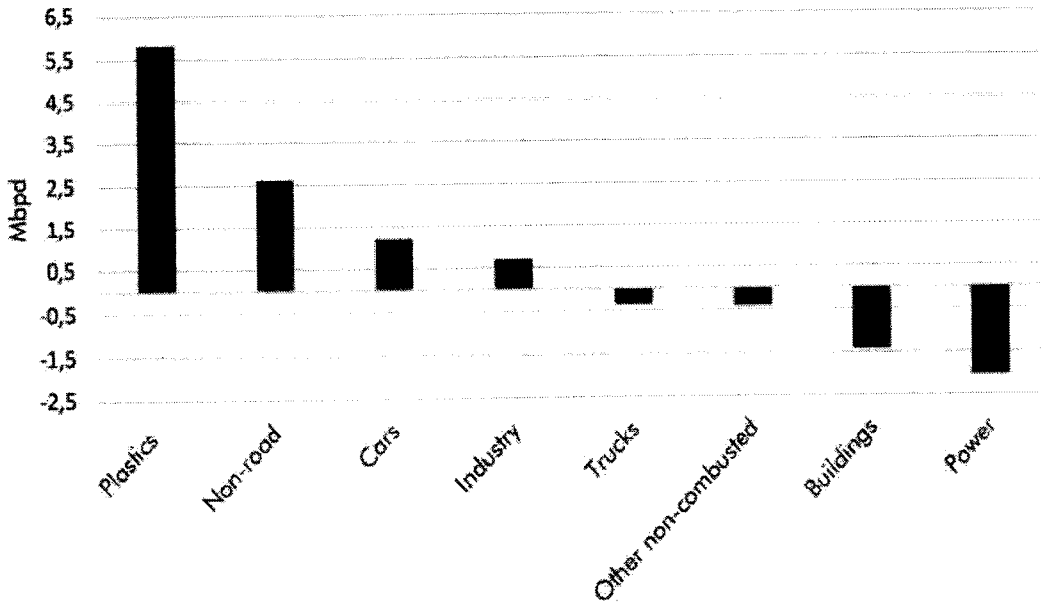
Question 1: Changes in the world market for oil and plastics

Extract 1: Oil's hopes are pinned on plastics

The oil industry has not been doing well lately. Even before the COVID-19 pandemic hit, growth in global demand had slowed to 1 per cent annually. Now, lockdowns and distancing to stop the spread of the coronavirus have decimated the global economy. The International Energy Agency (IEA) recently released projections of rapid short-term decline in global demand. Depending on how long and severe the economic crisis proves to be, it will take years for demand to recover. Indeed, with electric vehicles cutting into oil demand by the end of the decade, it may never fully recover.

But the industry has a response to this dire forecast, and it can be summarised in one word: plastics. Overall, plastics represent a fairly small portion of oil demand. Annually, the world consumes around 4,500 million tonnes (mt) of oil but only about 350mt are plastics. Nonetheless, plastics are commonly projected to be the biggest source of new demand for oil over coming decades — in some projections, the only real source. From 2020 to 2040, British Petroleum (BP) expects plastics to represent 95 percent of the net growth in demand for oil as seen in Figure 1.

Figure 1: Oil demand growth based on BP forecasts, 2022 to 2040 (million barrels per day, mbpd)



Source: Vox- Energy and environment, 28 Oct 2020

Extract 2: Plastic shortages

Early in the COVID-19 pandemic, while there is a fall in output for oil production, the demand for plastic products and products containing plastic increased sharply. Yet quarantines restricted productivity at chemical and processing plants, so many plastics suppliers could not fulfill orders. Plastics production facilities must be regularly shut down for extensive maintenance, but COVID-19 restrictions delayed most scheduled 2020 shutdowns, which must now be performed. And turnaround takes longer with pandemic health and safety restrictions when fewer workers are on site.

Source: https://www.riskmethods.net/resilient-enterprise/plastics-shortage, accessed 28 Jul 2022

Extract 3: The global plastic market

The global plastic market size was valued at 593 billion US dollars in 2021. It is expected to expand at a compound annual growth rate of 3.7% from 2022 to 2030. The increasing plastic consumption in the construction, automotive, and electrical & electronics industries is projected to support market growth during the forecast period.

Regulations to decrease gross vehicle weight to improve fuel efficiency and eventually reduce carbon emissions are driving plastic consumption as a substitute for metals, including aluminum and steel, for manufacturing automotive components.

The growth of the construction industry in emerging markets such as Brazil, China, India and Mexico have been instrumental in fueling the demand for plastics. Economists generally believe that while there is a global attempt to raise awareness of the negative impacts of plastic through education, it is unlikely to greatly deter consumers' behaviour towards plastics.

Source: Grand View Research Market Analysis Report, 2022

Extract 4: Are plastic containers safe for our food?

The industry claims its containers are safe, but some experts point to a lack of data and information and warn that plastic and heat are not a good mix. There are thousands of compounds found in plastic products across the food chain, and relatively little is known about most of them. But with new research, we are starting to discover that some of the chemicals contained in plastic is concerning. Phthalates, for example, which are used to make plastic more flexible and are found in food packaging and plastic wrap, have been found by the Centers for Disease Control and Prevention (CDC) in measurable levels across the US population. They have been linked to reproductive dysfunction in animal studies and some researchers have suggested links to decreased fertility, neurodevelopmental issues and asthma in humans, but many of these issues are likely to surface only after years.

Adapted from The Guardian, 18 Feb 2020

Extract 5: Plastic waste is a growing menace, and a wasted opportunity

The use of plastics is deeply embedded in our daily lives, in everything from grocery bags and cutlery to water bottles and sandwich wrap. But the quest for convenience has gone too far and we are failing to use plastics efficiently, wasting valuable resources and harming the environment. Plastic overconsumption and mismanagement of plastic waste is a growing menace, causing landfills to overflow, choking rivers, and threatening marine ecosystems. This has a negative impact on sectors that are critical to many economies, including tourism, shipping, and fisheries.

Southeast Asia has emerged as a hot spot for plastic pollution because of rapid urbanisation and a rising middle class, whose consumption of plastic products and packaging is growing due to their convenience and versatility. But local waste management infrastructure has not kept pace, resulting in large quantities of mismanaged waste. COVID-19 has exacerbated the situation due to increased consumption of masks, sanitiser bottles and online delivery packaging. In Thailand, the Philippines and Malaysia, only 18 to 28 per cent of recyclable plastic are recovered and recycled, and most plastic packaging waste is left to pollute the environment, littering beaches and roadsides. However, momentum is building to combat this issue. Countries, corporations and communities are developing strategies and taking actions to reduce, reuse and recycle plastics. Governments in Thailand, the Philippines and Malaysia have prepared road maps to prioritise plastics-related policies and investments in target sectors to encourage plastics recycling.

On the other hand, many African countries have announced a total ban on plastic bags, including Botswana and Rwanda. These bans include the use, manufacture and importation of one of the most common packaging materials. In 2008, Rwanda banned plastic bags in a push to protect the environment. The small east African nation is one of at least 40 countries that have restricted, banned or taxed the use of plastic bags, but its approach is one of the most extreme. Owners of factories caught producing non-authorised plastic bags face up to a year in prison, while those who sell them could be fined a maximum of 300,000 Rwandan francs (equivalent to about 408 Singapore dollars).

According to Rwanda Environment Management Authority (REMA), a "large black market" for plastic bags emerged, as there is a lack of alternatives and an unwillingness to change habits. At that time, Rwanda did not have any industries that produced environmentally friendly, reusable bags. Furthermore, huge investments were also required to expand nascent recycling capacities. To tackle these problems, companies that used to make plastic bags were given tax incentives to buy equipment to recycle plastic or manufacture environmentally friendly bags. The government also began campaigns aimed at changing behaviour by raising community awareness on the negative impacts that plastic has on human health, and biodiversity, as well as on community development.

Adapted from World Bank Blogs, 6 April 2021 and Channel News Asia, 23 Jul 2022

Questions

(a) Using information from Extract 1, identify and explain the factors that have caused the International Energy Agency (IEA) to project a rapid short-term decline in global demand for oil. [4]

(b) With reference to Extract 1, state and explain the economic relationship between oil and plastics. [2]

(c) With reference to Extract 2, explain how the COVID-19 pandemic has affected the price elasticity of supply of plastics. [2]

(d) Using demand and supply analysis, explain the change in the output of plastics and comment on its impact on the market for oil. [7]

(e) Explain the factors that producers of plastic bags in Rwanda could consider when deciding whether to comply with the ban. [4]

(f) (i) Assess the relative significance of information failure in accounting for the overconsumption of plastic products. [8]

(ii) Explain how investments by a government in target sectors to encourage plastics recycling could lead to sustainable growth in the country. [6]

(g) In light of the overconsumption of plastic products, discuss the view that a government will be more successful in addressing the problem by using a ban rather than education campaigns. [12]

[Total: 45]

Question 2: ASEAN – A thriving regional economy?

Extract 6: The economic situation in ASEAN countries

In 2020, the estimated total gross domestic product (GDP) of all Association of Southeast Asian Nations (ASEAN)[1] states amounted to approximately 3.08 trillion US dollars, a significant increase from the previous years. In fact, the GDP of the ASEAN region has been skyrocketing for a few years now, reflecting the region's thriving economy.

Table 1: Gross Domestic Product for selected ASEAN countries, 2018 to 2021 (billion USD dollars)

Country	2018	2019	2020	2021*
Indonesia	1042.71	1120.05	1059.9	1186.07
Malaysia	358.99	365.39	337.28	372.75
Philippines	346.84	376.82	361.49	393.61
Singapore	376.99	375.48	345.29	396.99
Thailand	506.55	544.03	500.29	513.17

**Gross Domestic Product for that year is forecasted*

Inflation rates for some countries in ASEAN are in the 2 to 5 per cent range that many economists view as optimal for emerging economies. High inflation is generally detrimental to the economy. Prices tend to rise faster than wages. It also leads to a weaker currency. For countries with a positive trade balance, this can be beneficial, but net importers suffer from a weaker currency.

Table 2: Inflation rates for selected ASEAN countries, 2018 to 2021 (%)

Country	2018	2019	2020	2021*
Indonesia	*3.29*	*2.82*	*2.03*	*1.56*
Malaysia	*0.97*	*0.66*	*-1.14*	*2.48*
Philippines	*5.31*	*2.39*	*2.39*	*3.93*
Singapore	*0.44*	*0.57*	*-0.18*	*2.31*
Thailand	*1.07*	*0.71*	*-0.85*	*1.23*

**Inflation rate for that year is forecasted*

Adapted from Statista, accessed 21 July 2022

[1] The Association of Southeast Asian Nations (ASEAN) was established in 1967 among five countries (Indonesia, Malaysia, Thailand, Singapore, and the Philippines), to facilitate trade and economic growth, as well as promote cultural development and social structures in the region. They were later joined by Brunei, Cambodia, Laos, Myanmar and Vietnam.

Extract 7: Steep price fall in Thailand

Why are falling prices a concern when everyone likes the idea of good sales? It is because falling prices can exacerbate an economic crisis. When prices fall and are expected to drop in the future, households and businesses choose to hold on to money. As a result, businesses lay off workers and the unemployed have more difficulty finding work. Eventually, they default on debts, causing bankruptcies and credit and liquidity shortages known as a deflationary spiral.

Such impacts for the macroeconomy can be exacerbated by COVID-19. For instance, lockdowns have impacted the demand for goods and services. The fall in global oil prices and slower economic momentum seen from COVID-19 concerns was the key factor behind Thailand's inflation environment. Indeed, in May 2020, Thailand's consumer prices fell by 3.4 per cent compared to a year ago, marking the deepest deflation print since July 2009. For 2020, the Commerce Ministry expects headline inflation to stay in the range of -1.0 per cent to -0.2 per cent.

The basic prescription for preventing deflation is straightforward: use monetary policy as needed to support aggregate spending. Since the pickup in severity of COVID-19 pandemic, the Bank of Thailand has implemented three interest rate cuts in 2020 to provide some support to economic activity. Currently, the policy rate stands at a record low of 0.5 per cent. Given the impending recession in 2020, May 2020's deflation print could be a very persuasive reason for the central bank to consider further accommodative measures.

Source: thailand.un.org, 26 June 2020

Extract 8: Central banks ease policy

Singapore's central bank eased its monetary policy, following regional peers that have rushed to cut interest rates and cushion the severe blow to their economies. Singapore's central bank is only the latest to act, with the Bank of Thailand and Bank Indonesia each cutting interest rates by 25 basis points to 0.75% and 4.5%, respectively, in mid-March.

The city-state's monetary policy is based on exchange rates, whereby the Singapore dollar is managed against a basket of major trade partners' currencies. This time, the central bank reduced its target appreciation rate to 0 per cent, while re-centering the exchange rate band downward based on the prevailing rates.

The move comes after Singapore announced a 33-billion-dollar stimulus package last Thursday. As a small and open city-state, it is considered one of the most vulnerable economies amid the COVID-19 pandemic, which has triggered travel bans and lockdowns across the globe. Singapore downgraded its growth projection for 2020 to a negative percentage.

One of the key factors behind its policy adjustment is deflationary pressure sweeping through the region. In February, Singapore's benchmark core inflation rate -- which excludes homes and cars -- shrank 0.1 per cent, the first decline in a decade. The

central bank in its policy statement pointed out that "disinflationary pressures are expected to broaden, even as the prices of some imported items are likely to increase as a result of the disruptions in production and transport." As Singapore relies heavily on imported consumer goods, a weaker home currency could spur domestic inflation.

Elsewhere in Asia, the latest consumer price indices (CPI) point to waning inflation or even deflation. The risk is that deflation could send the region's economies into a negative spiral -- with lower corporate earnings smothering wage growth, ultimately hurting consumer sentiment. Thailand's inflation rate slipped to 0.7 per cent from 1.1 per cent, while Malaysia's fell to 1.3 per cent from 1.6 per cent. Prices have even eased in rising economies such as Vietnam that have seen relatively high inflation in tandem with their swift growth.

Source: Nikkei Asia, 30 March 2020

Questions

(a) With reference to Table 2, compare the changes in general price levels of the various ASEAN countries between 2018 and 2021. [3]

(b) (i) Explain whether "inflation rates for some countries in ASEAN are in the 2 to 5 per cent range that many economists view as optimal for emerging economies" (Extract 6) is an example of a normative statement. [3]

(ii) Explain how, in economic theory, emerging economies can be expected to maintain inflation rates that are viewed by economists as optimal and comment on the extent to which the data in Table 2 supports this. [7]

(c) Explain how the following could lead to the weakening of the domestic currency.

(i) Inflation in the country [3]

(ii) Decrease in interest rates by the country's central bank [3]

(d) With reference to Extract 7 and using AD/AS analysis, explain the causes of deflation in Thailand. [6]

(e) Discuss whether high inflation, rather than deflation, is more detrimental to the economy. [8]

(f) "The basic prescription for preventing deflation is straightforward: use monetary policy as needed to support aggregate spending."

Discuss the extent to which the above view is valid for countries like Thailand and Singapore to prevent deflation. [12]

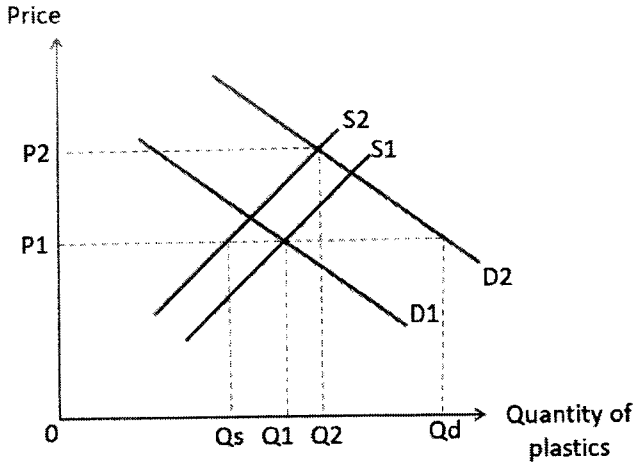
[Total: 45]

2022 Prelim H1 CSQ1: Changes in the world market for oil and plastics

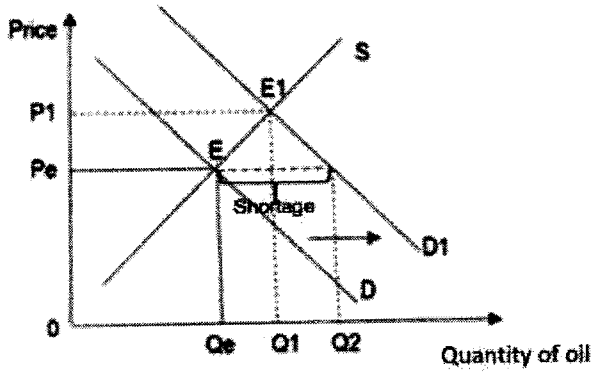
Suggested Answers:

(a)	**Using information from Extract 1, identify and explain the factors that have caused the International Energy Agency (IEA) to project a rapid short-term decline in global demand for oil.** **[4]**
	• **Factor 1:** "Decimated global economy" → **fall in income [1]** → fall in **global demand for oil, assuming oil is a normal good. [1]** • **Factor 2:** "Electric vehicles cutting into oil demand by the end of the decade, it may never fully recover" → increase in demand for electric vehicles → **fall in demand for petrol powered cars which are substitutes for electric vehicles [1] → fall in global demand for oil as oil is needed as a factor input (derived demand) to produce fuel/gasoline to drive petrol powered cars. [1]**
(b)	**With reference to Extract 1, state and explain the economic relationship between oil and plastics.** **[2]**
	• **Evidence from Extract 1:** "Nonetheless, plastics are commonly projected to be the biggest source of new demand for oil over coming decades" • **State the economic relationship: Derived demand/factor input. [1]** • **Explain the economic relationship:** Demand for oil is derived from the demand of plastics as oil is a factor input used to produce plastics. A **fall in demand for plastics will lead to fall in eqm** price **and quantity for plastics** → lead to a **fall in demand for oil. [1]**
(c)	**With reference to Extract 2, explain how the COVID-19 pandemic has affected the price elasticity of supply of plastics.** **[2]**
	• **Evidence from Extract 2:** "Plastics production facilities must be regularly shut down for extensive maintenance. Yet COVID-19 restrictions delayed most scheduled 2020 shutdowns, which must now be performed. And turnaround takes longer with pandemic health and safety restrictions when fewer workers are on site" • **Factor - Time/Existence of spare capacity:** In the **short run**, due to the **lack of workers** on site due to COVID-19 restrictions, it will **restrict firms' ability to expand production when price increases [1] → supply is more price inelastic. [1]**
(d)	**Using demand and supply analysis, explain the change in the output of plastics and comment on its impact on the market for oil.** **[7]**
	• **Explain the fall in supply for plastics:** "Yet quarantines restricted productivity at chemical and processing plants, so many plastics suppliers could not fulfill orders" → **increase in unit COP → lower potential profits per unit → fall in SS.**

- **Explain the increase in demand for plastics:** "The increasing plastic consumption in the construction, automotive, and electrical & electronics industries is projected to support market growth during the forecast period." → **increase in demand for plastic products → as plastics is a factor input used in the production of plastic products → increase in demand for plastics.**
- **[Make a judgement on the relative magnitude of the shifts]**



- Demand for plastic products and products containing plastic increased sharply" + "the growth of the construction industry in emerging markets such as Brazil, China, India, and Mexico has been instrumental in fueling the demand for plastics" → the emerging markets are large economies → increase in DD likely to be greater than decrease in SS for plastics.
- At the original price level P1, there is a shortage as quantity demanded now exceeds quantity supplied. Price is thus pushed upwards. As price rises, quantity demanded falls while quantity supplied rises. The shortage is gradually reduced as prices reach P2. Equilibrium price is higher at P2 and equilibrium quantity higher at Q2 → increase output for plastics
- As explained in (b) an increase in output for plastics → increase in demand for oil



	• **Explain via MAP the impact on the market for oil:** At the original price level Pe, there is a **shortage** as quantity demanded now exceeds quantity supplied. **Price is thus pushed upwards.** As price rises, quantity demanded falls while quantity supplied rises. The shortage is gradually reduced as prices reach P1. Equilibrium price is higher at P1 and equilibrium quantity higher at Q1 for oil. • **Comment on its impact on the market for oil:** o **[Extent of the shifts]** In the short run, as plastics only form a small percentage of total global demand for oil at around 8 percent, the demand will only increase by a smaller extent. Hence, equilibrium price and quantity will increase by a smaller extent. o However in the long run, it would be likely to be very significant as plastics is the fastest growing representation in the global demand for oil. Hence, equilibrium price and quantity will increase by a larger extent. OR However in the long run, supply of plastics likely to increase very significantly in the long run as production facilities ramp up. Hence, equilibrium price may fall in the long run. OR o **[PED & PES]** OR In the short run, PED for oil is price inelastic due to the high degree of necessity in the production process. PES is also price inelastic in the short run as time in need to extract and process the oil. This means that there will be a large increase in equilibrium price with a smaller increase in equilibrium quantity. **Up to 4 marks** for valid explanation of the change in output of plastics and the impact on the market for oil. For the full 4 marks, an answer should link to a change in demand for plastic products and hence plastics and a rise in unit costs of production due to lower productivity. Demand would increase by a larger extent as supported by evidence in the Extract. **Up to 3 further marks** for valid and relevant comment. There are many possible valid comments that could be made, and one well-made and well-considered comment can gain up to 3 marks. Valid comments could be about time period.
(e)	**Explain the factors that producers of plastic bags in Rwanda could consider when deciding whether to comply with the ban.** **[4]**
	Any 2 with elaborations. • **Benefit of complying with the ban:** Avoiding jail term and large fine. This will reduce the cost incurred by the producers./ "Tax incentives to buy equipment to manufacture environmentally friendly bags" → lower unit cost of production → higher profits. • **Cost of complying with the ban:** Loss of revenue from the sale of plastic bags./Higher cost of production incurred as the firm would need to switch to produce other alternative goods as they would need to purchase new

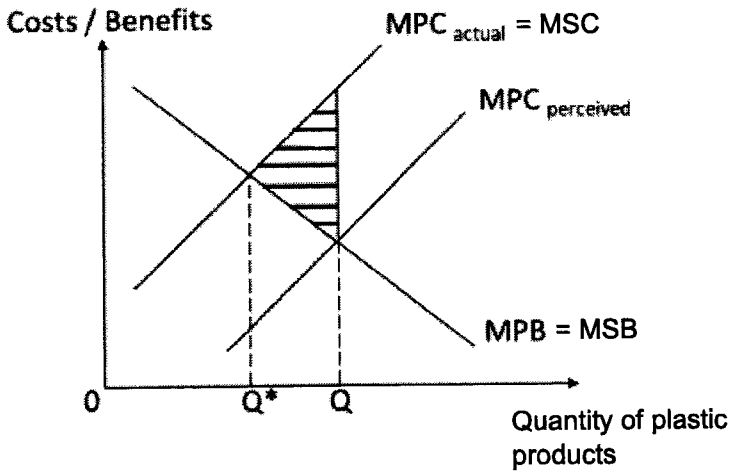
machinery and hire new labour or modify the factory for production of alternative goods. [2]

The producer will decide to comply with the ban if the benefits of compliance outweigh the costs.

(f)	(i)	**Assess the relative significance of information failure in accounting for the overconsumption of plastic products.** **[8]**

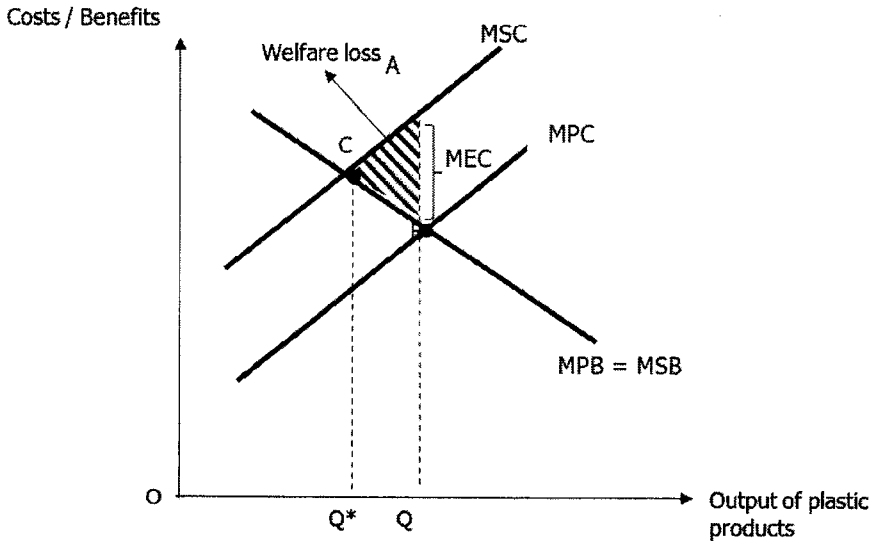
Explain how information failure leads to overconsumption of plastic products:

Consumers may not be fully informed of the harmful effects from consuming plastic products. Extract 4: For example, due to information failure, consumers may not be fully aware of the health risks such as decreased fertility or may underestimate the chances of contracting neurodevelopmental illnesses. The consumers perceived the marginal private cost to be at $MPC_{perceived}$ which is lower than the actual marginal private cost of consumption of plastic products as indicated by MPC_{actual}. Assuming no externalities, MPC_{actual} = MSC, and MPB = MSB.



Hence, with no government intervention, consumers will only be concerned about $MPC_{perceived}$ and MPB in their decision-making process and consume plastic products at Q which is higher than the socially optimal level, Q* where MSC=MSB. This leads to an over-consumption of plastic products by QQ* due to the over-allocation of resources. There is a welfare loss to the society shown by the shaded area.

Explain how presence of negative externalities leads to overconsumption of plastic products:



In a free market, the producers and consumers only consider private costs and benefit, ignoring externalities. The consumers will consume up to the output level, Q, where MPB intersects MPC. As such, Q units are being consumed. Extract 5: "Plastic overconsumption and mismanagement of plastic waste is a growing menace, causing landfills to overflow, choking rivers, and threatening marine ecosystems." The threat to the marine ecosystems lower the revenue/profits of fishermen who are third parties with no compensation. Hence, MSC > MPC. The socially optimal output will be where MSB intersects MSC where society's welfare is maximised. At Q, the MSC is greater than the MSB. This means that the last unit of output adds more to society's costs than it will to society's benefits. Hence, the price mechanism over-allocates resources to the consumption of plastic products, leading to an overconsumption by Q*Q units. This leads to the deadweight loss as indicated by area ABC.

Comment on the relative significance:

- Extract 5: "Plastic overconsumption ... This has a negative impact on sectors that are critical to many economies, including tourism, shipping, and fisheries." As the negative impact are on sectors that play a significant role in many economies, this means that it has a large negative impact on the economic growth of many economies in the world. Hence, negative externalities is likely to be very significant in accounting for the overconsumption of plastic products.
- Extract 4: "But with new research, we are starting to discover that some of the chemicals contained in plastic is concerning. Phthalates, for ... have been linked to reproductive dysfunction in animal studies and some researchers have suggested links to decreased fertility, neurodevelopmental issues, and asthma in humans but many of these issues are likely to surface only after years." As the research is new and recent and as the data collected is currently on animals,

it might take time and be difficult to accurately estimate the actual private cost of plastic products consumption. Hence, information failure is less significant in accounting for the overconsumption of plastic products.

Level	Knowledge, Application & Understanding	Marks
L2	For a rigorous analysis in assessing the relative significance of information failure in accounting for the overconsumption of plastic products.	4-6
L1	An underdeveloped analysis in assessing the relative significance of information failure in accounting for the overconsumption of plastic products. A one-sided analysis of either information failure or negative externalities in accounting for the overconsumption of plastic products.	1-3

In addition, **up to a further 2 marks** for valid evaluative comment. This can focus on how information failure is likely insignificant given the lack of data of actual private cost in the current time period.

(ii) **Explain how investments by a government in target sectors to encourage plastics recycling could lead to sustainable growth in the country.** **[6]**

Sustainable growth: refers to a rate of growth that is **sustained** over a period of time and **can be maintained without creating other significant economic problems, particularly for future generations**.

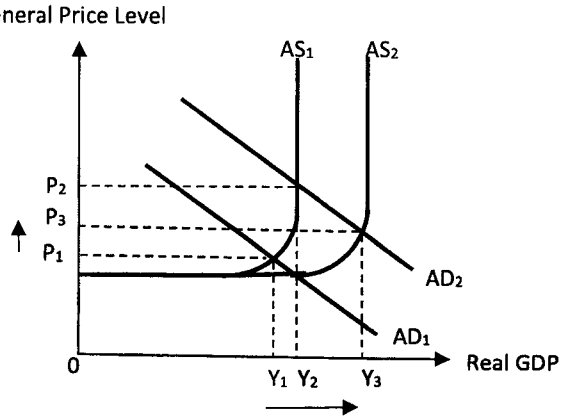
Explain how government investments in recycling plastics can lead to sustained growth and

- An increase in government expenditure (G) or investments (I) would lead to a direct increase in AD since G/I is a component of AD. If there is spare capacity, this increase in G would trigger the multiplier effect, which will increase AD and real GDP by a multiplied amount. The AD curve will shift rightwards from AD_1 to AD_2 in Figure Y below. Actual growth is achieved when real GDP increases from Y_1 to Y_2.

- In the long run, these investments in the area of new infrastructure and/or newer technology would translate to an increase in quantity of factors of productions and state of technology. This will increase the productive capacity of the economy. Long-run AS therefore increases, as shown by the rightwards shift of the AS curve from AS_1 to AS_2, thus achieving potential growth.

- As a result, sustained growth is achieved, with a further increase in real GDP from Y_2 to Y_3, and only a slight increase in GPL to P_3 instead of P_2.

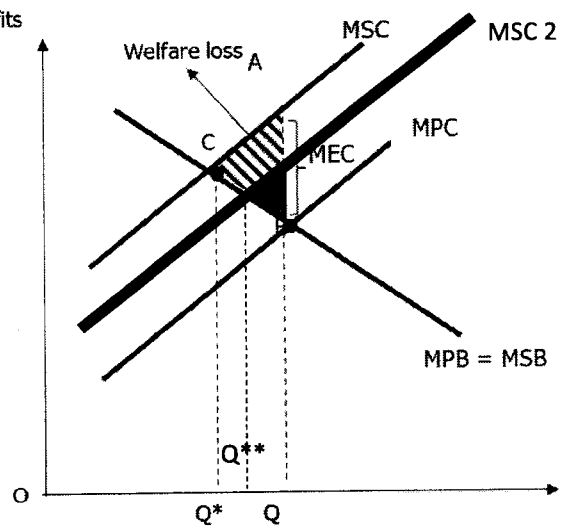
Figure 1: Sustained growth due to Government investment in Recycling sectors



Beyond achieving sustained growth, government investments in the recycling sector can also lead to cleaner environment, thus allowing the government to achieve sustainable growth.

Explain how government investments in recycling plastics can resolve market failure of the plastic market.

The investments in the recycling center would mean that plastics can be reused again, these plastics would no longer end up as waste. As seen in Extract 5, mismanagement of plastic waste is a growing menace, causing landfills to overflow, choking rivers, and threatening marine ecosystems. This would translate to less pollution and thus less externalities. This is seen as a fall in MEC resulting in a fall in MSC to MSC 2 and increase in socially optimum level of output to Q**.



This would mean an extension on the longevity of the landfills and the river system, indicating less issues for the future generations.

(g) In light of the overconsumption of plastic products, discuss the view that a government will be more successful in addressing the problem by using a ban rather than education campaigns. [12]

Hypothesis:
Using economic theories, explain how bans and education campaigns work in addressing the issue

What is a Ban:

Ban is a form of legislations for compliance. Fines or other forms of punishments would be meted out for non-compliance. It is used when it is not possible or effective to rely on changing market signals. For instance, when the extent of the market failure is extensive or plagued with high degree of uncertainty, regulations would need to be used. Measures of this type are based on command-and-control system. This is a process of controlling economic activities through licenses, setting standards, laws and administrative rules. The ban on plastic bags as reflected in the extract can directly influence firms' or consumers' behaviour.

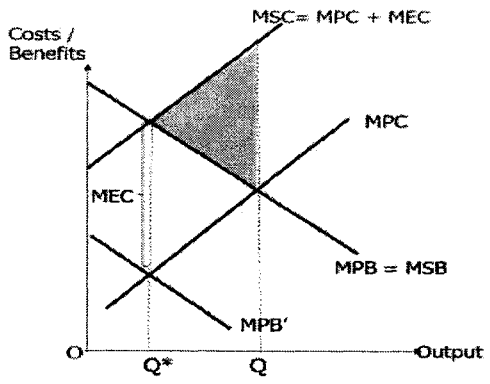
How does the ban on plastic bags work? (Students only need to explain **either** a partial ban on plastic products **or** a total ban on plastic bags)

How do a Partial Ban work:

A ban can be imposed on <u>consumers</u> directly by changing their willingness and ability to consume a good.

An example is a partial ban on consumption of a plastic product in the form of plastic bags. In Rwanda, these bans include the use, manufacture and importation of one of the most common packaging materials.

In the case of the partial ban on usage of plastic bags by consumers, it works to influence the demand in the market. To ensure compliance, the law has to be accompanied by regular checking and monitoring to surface violators of the law. Punitive measures such as hefty fines are also put in place to punish violators.



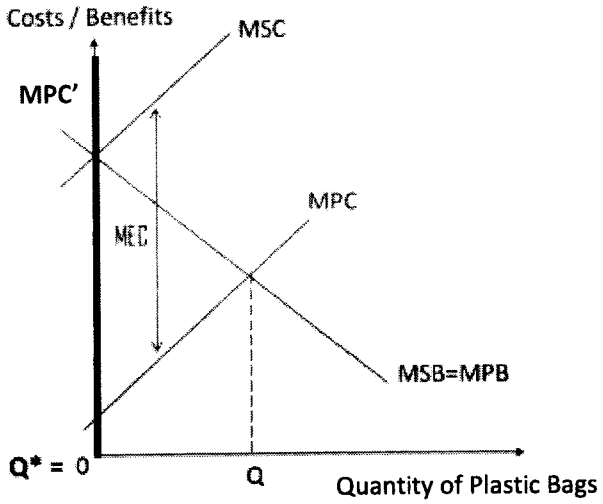
As the partial ban of plastic products in the form of plastic bags makes it less convenient for consumers to consume plastic products, the satisfaction derived decreases. MPB decreases to MPB' (Figure 1).

Assuming the government had accurately estimated the MEC and imposed the ban accordingly, private efficient output now coincides with socially efficient output Q*. **Society's welfare is maximised** at Q*. Market failure is corrected, and allocative efficiency is achieved.

How do a Total Ban work:

A ban can also be imposed on <u>producers as observed in the ban of production of plastic bags in Rwanda.</u>

- A **total ban on production** can be imposed on producers of goods such plastic bags. This will result in no goods being produced and thus the MPC shifts to MPC'. Thus, the private output will be where MPB=MPC' at zero output. Thus the socially optimal output is achieved and the deadweight loss is eliminated. Allocative efficiency is achieved.

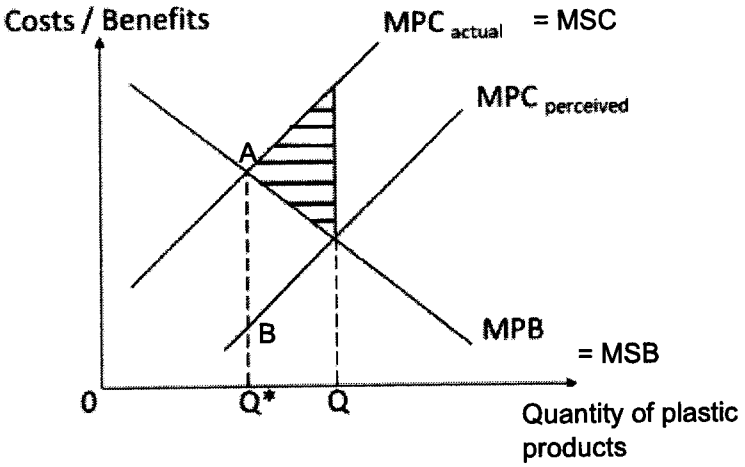


What education campaign is:

To address the information failure, the government may increase public awareness on the harmful effects of smoking through campaigns or the media and hence discourage the consumption of cigarettes.

How provision of information works:

Providing information about harmful health effects helps consumers to be aware of the full private costs of consuming plastic products. Private costs will therefore be appropriately valued at the higher MPC_{actual} (Figure 3), lowering consumption of plastic products from Q to the socially optimal level of Q*, correcting the market failure.



Thesis:

Why bans are successful and educational campaigns lacking

Advantages of using bans (pick 1):

1. Legislation is **easy to enact, efficient and has certainty of outcome when backed by inspections which are sufficiently regular and rigorous, and high enough penalties as effective deterrent**. Legislation is considered to be a powerful tool as it is mandatory, resulting in more certain outcomes. Bans are more straightforward to devise, easier to understand and easier to implement due to the need for compliance. It is used when it is not possible or effective to rely on changing market signals. E.g. when the extent of the market failure is extensive (which is reflected both in Extract 1 and 5) or plagued with high degree of uncertainty, it is only realistic to use regulations.

2. **Legislation can lead to a less allocative inefficient outcome when extent of negative externality is substantial** (in comparison with having no government intervention). In practice, the extent of negative externalities is difficult to monetise and estimate, resulting in under- or over-estimation of the socially optimal level of consumption.

   In the case of substantial negative externalities, where the socially optimal level of consumption is actually greater than 0, a total ban can still lead to an outcome that is closer to the socially optimal level of consumption, where the extent of the welfare loss and hence allocative inefficiency can be lesser than if there was no government intervention.

Disadvantages of Educational Campaigns (Pick 1)

1. **Uncertainty:** The success of this measure depends on the receptivity of the target audience which is highly unpredictable. Citizens of the country may not be receptive to education and while education may raise awareness of the costs of consuming plastic products, it does not necessarily translate to behavioral changes that lead to lower consumption levels. This can be seen in Extract 1.

2. **Long Term:** Furthermore, as the policy merely encourages but does not enforce the lower consumption of these goods, it may take a long time before substantial effects can be felt. This is especially so because these goods tend be addictive and are highly habit-forming, making it even more difficult for consumers to change their consumption patterns and reduce consumption levels within a short time period. This would mean that the externalities associated with plastic consumptions is likely to persist for some time.

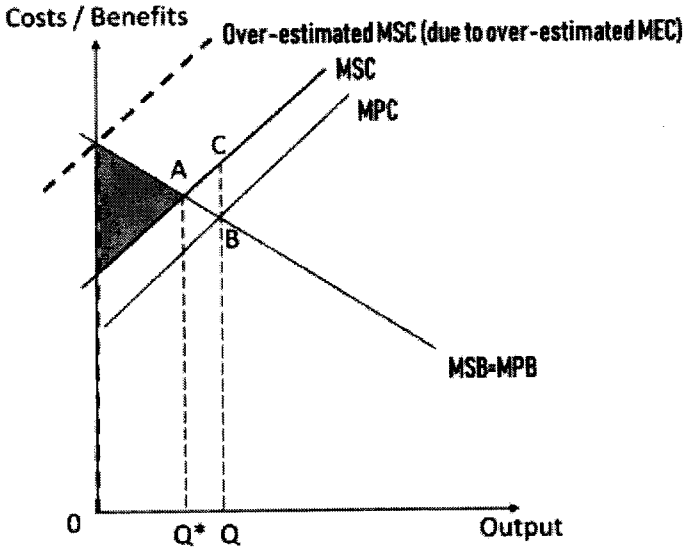
Anti-thesis

Why bans can be unsuccessful while education campaigns are successful

Disadvantage of bans (pick 1):

1. **Government Failure due to bans**

Diagrammatic analysis for a ban resulting in a more allocatively inefficient outcome in the presence of insignificant negative externalities



Welfare loss before and after a ban in the case of **less significant** negative externalities when the socially optimal level of consumption Q* > 0

In this case where negative externalities are less significant as shown above, a ban may result in a welfare loss that is larger than if there had been no government intervention because the shaded area > ABC (Q* is actually closer to Q than to output = 0). This makes a total ban more allocatively inefficient than no government intervention at all.

2. **Unintended outcomes in terms of shadow/black market formed.**

According to Rwanda Environment Management Authority (REMA), a "large black market" for plastic bags emerged, as there is a lack of alternatives and an unwillingness to change habits. At that time, Rwanda did not have any industries that produced environmentally friendly, reusable bags. (Extract 5)

A total ban on plastic bags would lead to an extremely high price for plastic bags. As long as the price perceived by producers is higher than the punitive measures of the ban, the producers will illegally still sell plastic bags. The lack of alternatives which also mean that the alternatives are more expensive would also consumers to buy plastic bags if they perceived that the punitive measures and the price of alternative is more than the price of plastic bags acquired in the black market.

Advantages of educational campaigns:

1. **Directly addresses information failure:** The provision of information helps consumers more accurately value the private cost of consuming cigarettes, and thus directly solves the root of the problem by correcting information failure. Consumers' valuation of private cost thus rises, bringing the level of consumption lower to that which is socially optimal.

Synthesis (Synoptic Conclusion)

Bans are likely to be more successful in the countries mentioned in the extracts.

Firstly, the extent of the externalities in plastic consumption is very large, the likelihood of government failure is low. This is especially true in countries in Africa and ASEAN where majority of economies have a lack of recycling facilities, this would mean much of the plastics waste end up in the environment. These countries are also relatively dependent on industries in which the environment can affect the production levels, e.g. tourism and agriculture. The need for an effective and quick solution is much needed in these countries.

Secondly, majority of these countries have a lower literacy rate and are also large in terms of geographical land size. This would compromise on the receptivity of its citizen and lengthen the process. Hence, limiting the success of education campaign. This would also mean a more expensive campaign.

Thirdly, education campaign mainly tackles the information failure associated with the consumption of plastic products, this is only one source of over-consumption and as of now, the extent of market failure due to information failure is likely to be less significant as explained in f(i), thus even if the education campaign is successful, it does not lead to a significant fall in consumption of plastic products.

Hence, ban is likely to be more successful for the countries mentioned in the extracts.

Bans are likely to be less successful in the short run while education campaigns are successful in the longer term.

While bans can arrest the issue immediately given compliance, education campaigns when given time will have a longer lasting impact on the environment.

Compliance towards bans can be challenging as well, as the countries in the extracts are generally perceived to be plagued by corruption, enforcement can be difficult. Given the larger geographical land size, this may mean enforcement further away from the central government could be laxer. A lack of alternatives as mentioned in Extract 5, would also mean that consumers and producers find it hard to adhere to the ban.

Level	Knowledge, Application & Understanding	Marks
L3	An answer that explains how bans and educational policies works to tackle over consumption of plastic products and its strength and weakness.	6-9
L2	An answer that describes bans and educational policies.	3-5
L1	Underdeveloped answer with limited reference to case material.	1-2

In addition, **up to a further 3 marks** for valid evaluative comment. This should focus on whether bans or educational campaigns are likely to be successful in the context of the ASEAN and African countries mentioned in the extracts.

[Total: 45]

2022 Prelim H1 CSQ2: ASEAN – A thriving regional economy?

Suggested Answers:

(a)	With reference to Table 2, compare the changes in general price levels of the various ASEAN countries between 2018 and 2021. [3]		
	Similarity: General price levels for the selected ASEAN countries increased overall between 2018 and 2021. **Differences: Any 2** **Rate of change:** The general price levels for ASEAN countries shown in Table 2 rose at an increasing rate, except for Indonesia which had a decreasing rate. **Extent of change:** The overall increase in GPL is the greatest in the Philippines between 2018 - 2021. **Consistency of change:** General price levels for the countries was increasing every year, except for Malaysia, Singapore and Thailand which had a fall in general price levels in 2020.		
(b)	(i)	Explain whether "inflation rates for some countries in ASEAN are in the 2 to 5 per cent range that many economists view as optimal for emerging economies" is an example of a normative statement. [3]	
	Normative statement is one that expresses an opinion or value judgement, which cannot be tested. **1. Evidence of how it could be a positive statement** While "inflation rates being in the 2 to 5 per cent range" can be tested by studying the changes in general price levels for the ASEAN countries. **2. Evidence of how it could be a normative statement** However, other aspects of this statement is merely an opinion that may not be possible to test. For example, since it is not possible to assess whether it is "optimal for emerging economies", there is a value judgement made that cannot be tested. **Stand:** This statement, taken as a whole, is a normative statement. **Stand alone is not awarded any marks without elaboration*		
	(ii)	Explain how, in economic theory, emerging economies can be expected to maintain inflation rates that are viewed by economists as optimal and comment on the extent to which the data in Table 2 supports this. [7]	
		Explain how optimal inflation rates can be maintained (4m) **1. Condition: Excess spare capacity** The range of 2 to 5 percent inflation can be considered low for the emerging economies. They can be maintained given that emerging economies are likely to have excess spare capacity with the untapped resources for the country's development.	

2. **Increasing AD due to rise in I and G [**

Emerging economies are also likely to be experiencing increases in investments and government spending → rise in I and G, causing AD to increase. However, even with large increases in AD, firms can hire or utilise the untapped resources without bidding up factor prices and hence inflation rate can be kept below 5% due to the excess spare capacity.

3. **Long run increases in AS**

In the long run, such optimal rates of inflation can be maintained as the rise in I and G would have led to capital accumulation and development of infrastructure, which causes an increase in the quantity and quality of factors of production and thereby increasing productive capacity → AS increases in the long run, resulting in lowering of GPL over time. Thus, inflation rate of 2-5% can be maintained.

Comment on the extent to which the data supports it (3m)

1. **Data evidence**

Only Indonesia and Philippines seem to have inflation rates that met the optimal range for most years except in 2021 and 2018 respectively. Malaysia's and Thailand's are largely below the optimal range of inflation, except for 2021 when Malaysia's inflation rate is forecasted to be 2.48%.

2. **2021 data as merely a forecast**

That said, as 2021 data is only a forecast, it is not clear if inflation rates for Philippines and Malaysia will be above 2% in 2021. Hence, given that the data for 2021 are mere estimates, if not taken into consideration, majority of the emerging economies in Table 2 would not have inflation rates that are considered optimal (except for Indonesia).

Stand: Thus, the data only supports to a very small extent.

**Other possible reasons can be accepted even if the stand shows that the data supports to a large extent and it is well-justified.*

For reference:

Country	2018	2019	2020	2021*
Indonesia	*3.29*	*2.82*	*2.03*	*1.56*
Malaysia	*0.97*	*0.66*	*-1.14*	*2.48*
Philippines	*5.31*	*2.39*	*2.39*	*3.93*
Singapore	*0.44*	*0.57*	*-0.18*	*2.31*
Thailand	*1.07*	*0.71*	*-0.85*	*1.23*

Note: SG should not be considered in the answers as it is not an emerging economy.

(c)	Explain how the following could lead to the weakening of the domestic currency. (i) Inflation in the country [3] (ii) Decrease in interest rates by the country's central bank [3]
	(i) **From Extract 1:** **High inflation** in the country could lead to loss of price competitiveness of exports. Rise in price of exports would cause a fall in quantity demanded for exports. Since fewer foreign consumers are buying the country's exports, there is a fall in demand for domestic currency. Hence the currency weakens. **Award 1 mark for either fall in qty demanded or consumers buying fewer exports.* Or High inflation means that domestic goods becomes more expensive and hence domestic consumers may switch to buying relatively cheaper imports. Hence they exchange domestic currency for foreign currency, increasing supply of domestic currency. Thus the currency value decreases, and weakens. *(Either SS of currency or DD of currency change – 1 will suffice for full 3m)* (ii) The **lowering of interest rates** by Thai govt → hot money outflows as returns to short-term investments decrease → speculators seeking for higher returns will look for more profitable short-term investments outside of Thailand → supply of domestic currency increases → currency weakens . *Fall in hot money inflow (Demand for Thai's financial assets may fall) which causes demand for Thai Baht to fall (also accepted).
(d)	With reference to Extract 2 and using AD/AS analysis, explain the causes of deflation in Thailand. [6]
	Definition **Deflation** is defined as a sustained decrease in the general price level of an economy. It usually occurs in or after periods of severe or protracted economic recession. **1. Benign deflation (Supply-side deflation)** Falling oil prices → lower unit COP, increase potential profit per unit, SS increases → as it is essential in production of many different goods → many industries will be affected → AS increases → surplus at the original GPL which then causes downward pressure on GPL as producers reduce price to sell off

	excess stocks→ GPL falls. → if sustained increase in AS due to sustained fall in oil prices→ deflation ensues. **2. Malignant deflation** Decreased demand due to lockdowns/ slower economic momentum → fall in C/I (with appropriate elaboration i.e poor consumer and investor confidence due to weak economic outlook) → AD decreases → GPL decreases → if fall in AD is sustained due to the prolonged pandemic → GPL falls further → deflation ensues.
(e)	Discuss whether high inflation, rather than deflation, is more detrimental to the economy. [8]
	Question interpretation More detrimental -> Weighing positive and negative effects of inflation and deflation by analysing the impacts on macro goals and SOL. Need to provide a value judgment on which is more detrimental in the conclusion. **Thesis: High inflation is more detrimental than deflation** **High inflation could lead to more negative impact on SOL compared to deflation** - Extract 1 evidence: erosion of purchasing power → affecting SOL. - **[Inflation]** For instance, for fixed nominal income receivers such as pensioners, welfare recipients, public sector employees and landlords will suffer the most in times of inflation. Given a constant nominal income, a large increase in the general price level will result in a significant fall in **real** income. This in turn reduces purchasing power which causes individuals to have less ability to buy goods and services, and thus **material SOL worsens**. - In addition, the fall in purchasing power could also lower access to essential goods and services like education and healthcare. Limited access to education and healthcare could lead to lower literacy rates and life expectancy, lowering the quality of life. **Non-material SOL worsens.** - **[Deflation]** On the other hand, in the case of a fall in GPL during deflation, fixed nominal income earners would have greater purchasing power and hence **better material SOL**. Access to essential goods and services are also less likely to be compromised, hence **non-material SOL is maintained/ improved.** **High inflation could lead to greater negative growth and unemployment compared to deflation** - **[Inflation]** High inflation could suggest significant rise in costs of production, leading to a fall in the firms' confidence and hence a fall in the volume of investments. Investors have a poorer economic outlook as they anticipate profitability of investments to fall, resulting in a leftward shift of the MEI, where volume of investments fall at every interest rate. Investment falls, ceteris

paribus AD falls. As a result, real output decreases, resulting in **negative economic growth**. In addition, the fall in output will lead to firms hiring less factors of production, thus derived demand for labour falls. AD_L decreases, and assuming wages are sticky downwards due to contractual agreements, there will be excess supply of labour at the prevailing wage rate and hence **demand-deficient unemployment.**

- **[Deflation]** Similarly for deflation, as mentioned in Extract 2, consumers and firms holding back on expenditure in anticipation of further fall in prices could lead to fall in AD. Consumption expenditure and investment expenditure decreases, resulting in a fall in AD, negative economic growth and demand-deficient unemployment ensues.
- [Deflation] However, if the fall in GPL was due to benign deflation, firms and households may continue to spend given the positive economic outlook. While GPL is falling, real output is still increasing, thus boosting consumers' and investors' confidence.
- Hence, deflation may not impact growth and employment so significantly compared to inflation.

Anti-Thesis: Deflation is more detrimental than high inflation

Deflation could be prolonged and harder to resolve compared to inflation

- Extract 2 evidence: holding off C and I due to expectations of lower prices in future → further fall in AD
- **Deflation creates expectations of further price falls**, and therefore consumers reduce their spending because they expect goods to become cheaper in the future. Firms will also cut down production as demand for goods and services fall. Investment decrease as there is no incentive to expand production levels. Hence C & I fall → causing further deflationary pressure in the economy as AD falls. This could lead to more prolonged periods of deflation and a deflationary trap that would be harder to resolve since any attempt by the government to boost AD may be limited in its success given the poor sentiments.
- **[Inflation]** On the other hand, the fall in AD resulting from the rise in GPL could possibly self-correct the problem of demand-pull inflation as the rise in AD would be curbed.

Other negative consequences of deflation can be accepted. E.g.

- ***Deflation increases the real value of debt, leading to negative growth.*** *Deflation makes it more difficult for debtors to pay off their debts. When there is deflation, prices of final goods & services sold by firms decline. To earn the same amount of revenue e.g. to pay debt, firms have to sell more units of output. This means that the real value of the firms' debt increases. When firms are unable to sell more units of output, then firms will find it harder to make repayments and are more at risk of going bankrupt. Similarly, workers may also see cuts to wages and hours worked in deflation, but the principal and interest*

payments of their home mortgages and other personal debts are often fixed. This makes it difficult for them to pay back their loans and bankruptcies become likely. Because bankruptcies increase, banks become reluctant to lend. This leads to a further fall in spending and investment. → Fall in C and I could cause negative growth and worsen the deflation situation which means it can be more detrimental to the economy.

Synthesis: CORE (2m for EV)

Criterion: Depends on duration of the problem

E.g. for emerging economies like Vietnam, their relatively high inflation rates was due to their swift growth (Extract 3)

- But these economies may not suffer from prolonged inflation which would compromise on growth as it is largely due to AD increasing, which could eventually taper off with increases in AS from the investments
- E.g. Philippines → above 5% in 2018, but is now in optimal range
- Hence, such cases of high inflation may instead boost further spending as consumers and investors are confident that the economy will grow and perform better over time.
- On the other hand, the sentiments during a period of falling prices would result in spending being held back. **Opinion:** Hence this is likely to cause deflation to be a prolonged one and hence more detrimental.

Criterion: Depends on root cause of the problem

- If the cause behind deflation is due to falling demand as seen in Extract 7 where Thailand experienced a steep fall in price as a result of how "lockdowns have impacted the demand for goods and services", this may mean that deflation in Thailand could be more severe and requires an appropriate and timely government intervention. Since unlike benign deflation, the fall in GPL is accompanied by falling real GDP due to falling AD, it is highly likely for the economy to fall into a deflationary spiral given the negative outlook. Hence, deflation is likely to be harder to recover from and effects of deflation would be prolonged.
- On the other hand, inflation, especially demand-pull, may not be that difficult to address given that AD might fall as a result of deflation.

Level	Knowledge, Application & Understanding	Marks
L2	For a rigorous analysis of the costs and benefits of high inflation and deflation.	4-6
L1	For a brief description of what the costs and benefits of high inflation and deflation are.	1-3

In addition, **up to a further 2 marks** for valid evaluative comment. This can focus on an evaluative judgement on whether high inflation is more detrimental compared to deflation.

(f)	"The basic prescription for preventing deflation is straightforward: use monetary policy as needed to support aggregate spending." Discuss the extent to which the above view is valid for countries like Thailand and Singapore to prevent deflation. [12]
	Thesis: It is straightforward If deflation is benign → there is little need for govt to worry and intervene However if deflation is malign → deflation is likely due to falling AD → expansionary FP and MP would help (Extract 2) Explain FP/ I/R policies (Extract 2) → What it is, how it works, how well it works – strengths **[Step 1]: Explain WHAT it is** A contractionary monetary policy will involve reducing interest rates by the Central Bank to increasing aggregate demand (AD). **[Step 2]: Explain HOW it works to reduce inflationary pressure due to overheating of the economy** Since interest rate is the cost of borrowing as well as the returns to savings, when interest rates decreases, cost of borrowing decreases. This in turn will have a direct impact on consumption and investment expenditure. Interest rates is the cost of borrowing money. When interest rate decreases, households will increase consumption as the cost of borrowing money for expensive purchases (such as houses and cars) has fallen. Hence, households would be attracted to borrow money to fund these purchases. This will increase the consumption expenditure. With a fall in interest rates implies a fall in the cost of borrowing for firms to finance their investment spending. As such, projects with lower expected returns will now appear profitable. Hence, firms will be more willing to invest, resulting in an increase in the volume of investment, which in turn increases investment expenditure. With an increase in C and I, this will lead to an increase in AD, ceteris paribus. With the increase in AD, real output increases by multiplied amount from Y1 to Y2* [draw diagram], thus increasing GPL and reduce the problem of deflation. [Link to the question]. **Anti-Thesis: It is not straightforward** **Limitations to FP/MP:** Tax cuts and interest rate cuts may not work due to consumer and business sentiments during deflation, some countries cannot cut interest rates further as they are very low already. **Interest elasticity of MEI curve** The interest elasticity of demand for investments would vary depending on the type of investment in question. The higher the interest elasticity of demand for investments, the more effective and successful would a fall in interest rate be in addressing deflation. If business sentiments are weak, this might cause the MEI of firms to be less interest elastic and hence, a fall in interest rates may not contribute to a significant increase in investment.

Governments may choose to use a combination of policies depending on the nature/state of economy (Extract 3)

- Singapore uses exchange rate policy given its small and open economy
- Explain how the zero appreciation (i.e. depreciation) works to resolve the problem of deflation for a country like Singapore

Limitations of ER: Explain how it is not straightforward as govt needs to consider other issues
e.g. extent of depreciation etc given SG's reliance on imports (Extract 3)
limited effectiveness of depreciation if trading partners are suffering from recession (Table 1 – GDP fell for ASEAN countries in 2020)

Synthesis: CORE (3m for EV) - Depends on severity of the problem.
This view is valid to a very small extent. If deflation is slight, and just occurring, using FP and MP to boost AD may be effective and quite straightforward. However, for countries like Thailand where deflation is likely to be prolonged and significant, the multiple cuts in interest rates may not be effective and other approaches will need to be considered. Similarly for Singapore, the prolonged effects of the pandemic could have resulted in the government having to consider the use of FP and ER policy in tandem to ensure deflation does not persist while also solving other issues like growth and unemployment.

Other possible criterion: constraints of govt (govt budget and their ability to use FP)

Level	Knowledge, Application & Understanding	Marks
L3	A well-elaborated answer that analyses how expansionary monetary policy works to resolve deflation and its limitations.	6-9
L2	An under-developed answer that analyses how expansionary monetary policy works to resolve deflation and its limitations. Or A well-developed and one-sided answer that analyses how expansionary monetary policy works to resolve deflation or its limitations.	3-5
L1	Underdeveloped answer with limited reference to case material.	1-2

In addition, **up to a further 3 marks** for valid evaluative comment. This should focus on the view as to whether the use of monetary policy is valid for countries like Thailand and Singapore to prevent deflation.

[Total: 45]