National Junior College
Economics Department

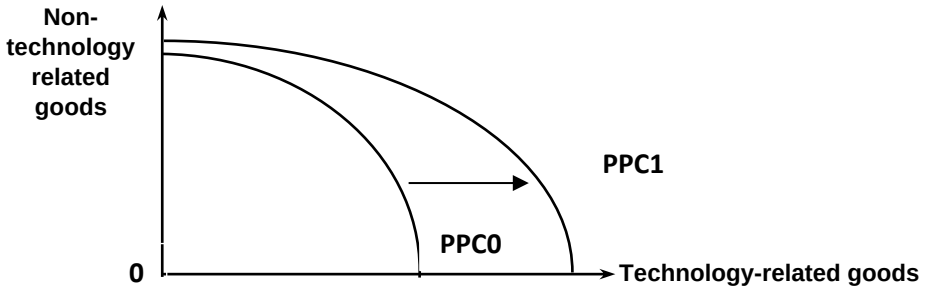
Preliminary Examination 2022

Paper 1 Answer Booklet

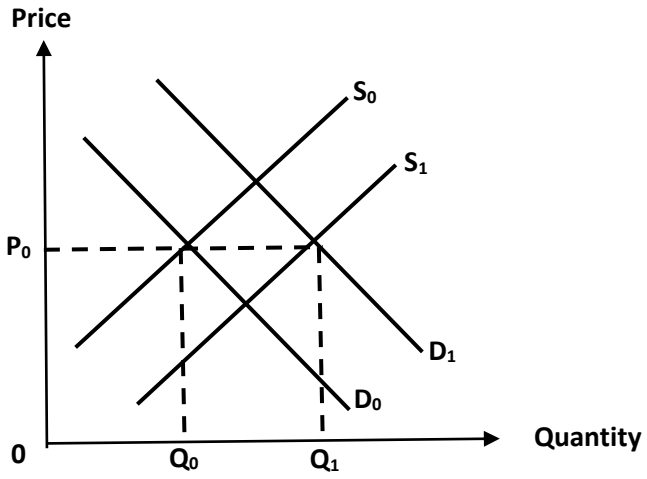
(Students' Version)

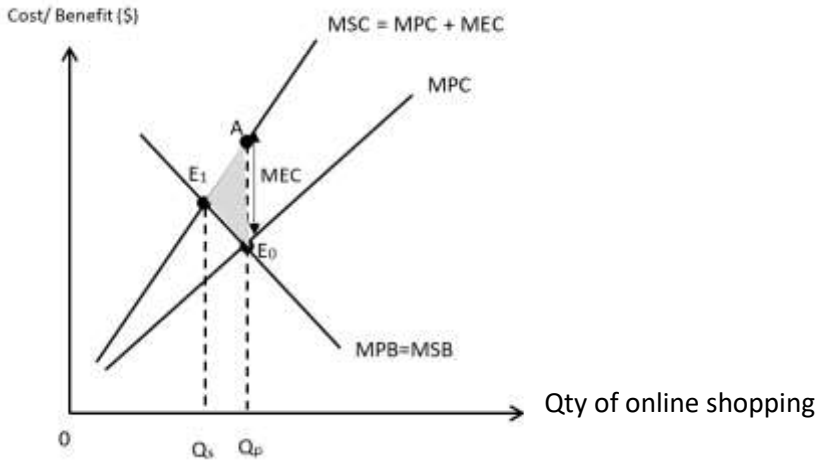
Senior High 2
H1 Economics
(Syllabus 8823)

Suggested Answer Outline and Examiners' Comments: Case Study Question 1

(a)	Compare the relative change in the retail revenue for Amazon, Walmart and Home Depot in 2010 and 2020. [2]
	• Similarity: All three firms have seen an increase in their retail revenue between 2010 and 2020. • Difference: However, the rate of increase in the retail revenue for the three firms are different, with Amazon experiencing the largest increase (2,800%), followed by The Home Depot (466%) and Walmart (90%).
(b)	Using a diagram, explain how the rapid adoption of internet access impact a country's production possibility curve. [5]
	• The rapid adoption of internet access worldwide would mean a rapid improvement in technology by firms in the economy as well. This would result in an increase in both the quantity and quality of capital resource in Singapore. • Firms that rely on technology (internet access in their production) will be able to produce more output. • The expansion of Singapore's production possibility curve can be illustrated by a skewed outward shift of Singapore's PPC from PPC_0 to PPC1 as shown in Fig. 1. • Diagram.  Fig 1: Production Possibility Curve
(c)	Identify and explain the two main characteristics of a public good, and comment on whether these are likely to be possessed by the Wi-Fi services provided by telecommunications firms. [6]
	Explain • A public good are goods or services that have the features of non-rivalry and non-excludability. • Define non-rivalry: non-rivalry means that the consumption of the good by one person does not reduce/diminish the benefit of the good available to others. • Define non-excludable: non-excludability means that it is technically impossible or economically unfeasible to exclude anyone from the benefits of the good once it is provided. Comment • The services provided for Wi-Fi access may not possessed the characteristics of non-rivalry and non-excludability.

	• The Internet is technically rivalrous in the sense that the computer networks on which it depends (its "physical layer") accommodate a finite amount of traffic. • Wi-Fi access is excludable since the users must pay for Internet access via the subscriptions, they pay for the services provided for Wi-Fi access by the telecommunications firms in the country.
(d)	Explain the likely value of the price elasticity of supply (PES) for the services provided by online retailers. [2]
	• The likely value of PES for the services provided by online retailers is likely to be more than 1. • This could be explained by the durable nature of the products offered by these online retailers, namely, e-retail, computing services, consumer electronics which allows the online retailers to easily stock up and keep the stocks of good available.
(e)	Using a relevant elasticity concept, explain how Amazon's differentiation strategy may have contributed to the change in its revenue. [5]
	• Amazon worked on differentiating their services, for e.g. priorities were placed on customer feedback and service were prompt and this has the effect of changing the taste and preferences of consumer towards the services provided by Amazon, leading to an increase in demand for their services. • The increase in demand leads to a new equilibrium where price and quantity will increase. • Their differentiation strategy promotes customer loyalty who believes that the high standard of services could not be found in the services provided by their rivals, that is the service offered by Amazon is not easily substitutable • With PED<1, hence, Amazon could increase the price of their products/services, leading to a less than proportionate decrease in quantity demanded. Hence its revenue will increase.
(f)	Using information from Extract 1, discuss whether demand factors or supply factors have a greater impact on the online transaction volume for e-commerce in the long run. [10]
	Introduction: • The impact on the online transaction volume for e-commerce in the long run will be discussed by an analysis of the demand and supply factors affecting online e-commerce transactions. Body: **(1)** Demand side factor – Changes in consumers' taste and preferences and increase in the size of digital consumers. • Consumers' taste and preferences can change over time. Taste and preferences can be affected by the latest developments e.g., the advent of the internet and the ongoing digitalization of modern life, thus changing tastes and preferences favorably towards online shopping. This is illustrated by the rightward shift of the demand curve (from D_0 to D_1) in Fig. 2 below. **(2)** Supply side factor – Fall in the costs of relevant resources • For firms providing online retailing, internet access and services could be seen as one of their factors of production. The fall in the price of internet access will in turn lead to a fall in their cost of production, hence increasing the market supply of e-

	commerce services. Thus, the supply curve shifts right from S_0 to S_1 in Figure 2 below. **(3)** Impact on the online transaction volume for e-commerce • The increase in demand combined with the increase in supply will result in a new market equilibrium quantity at quantity Q_1 as shown in Figure 2 below, indicating a higher volume of online transaction in the e-commerce market.  Figure 2: Market for e-commerce Evaluative Conclusion: Supply factors may be have a greater impact on the online transaction volume for e-commerce in the long run. • According to Extract 1, over the last few years, e-commerce has become an indispensable part of the global retail network. • Since the impact of COVID-19 has been a significant force in influencing consumers' taste and preferences as well as the number of online consumers, but its further progression is unpredictable. • On the other hand, online commerce landscape is changing rapidly, supported by the technological innovation. Policy makers and businesses and provides evidence that internet access and speed, online security, and financial inclusiveness matter in facilitating internet retail sales. Governments should consider these as important issues in building an enabling environment that will help B2C online commerce adapt to the post COVID-19 world and ensure that innovations create opportunities for all.
(g)	The 'mountains of discarded packaging' (Extract 3) that comes from online shopping addiction leads to economic inefficiency in resource allocation
(i)	Using a diagram, explain how the 'mountains of discarded packaging' leads to economic inefficiency in resource allocation. [5]
	• With reference to Extract 3, Greenpeace estimates that Singles' Day generated 52,400 metric tons of CO2 from manufacturing, packaging and shipping in 2017.

	The generation of CO2 from these activities results in pollution of the environment. This is the external cost of consumption imposed on the environment. • Since MEC to society is not internalised by the consumers of online shopping, there is divergence between MPC and MSC, as seen in Figure 1 below, the actual costs to society are where MSC= MPC+MEC. • Online shoppers only consider their private cost of consumption. MEC is not internalised, leading to a greater private consumption, where MPC=MPB at Qp units, than the social optimal level of output, where MSC=MSB at Qs units of consumption in Figure 1. • There is over-consumption of QsQp units of online shopping. This results in allocative inefficiency and deadweight/welfare loss to society of area AE_0E_1. • diagram  Figure 1: Negative externalities from the discarded packaging due to over-consumption.
(ii)	Assess the most appropriate measure to deal with this economic inefficiency in resource allocation. [10]
	Introduction: • Given the inefficient allocation of resources discussed in part (i), firms and governments alike have implemented measures to deal with the negative effects that packaging waste have on the environment. Body: Measure (1): Government could impose an indirect tax on the expenditure on online shopping • The aim of such indirect specific taxes (for example, expenditure tax) is to get online shopping addicts to internalize the negative cost imposed on the environment caused by packaging wastes. • As seen in Figure 4, the tax will increase the marginal cost of online shopping as illustrated by an upward shift of the MPC curve from MPC to MPC+tax. • Consumers will thus consume online shopping at MPB=MPC+tax, thereby decrease their consumption from Qp to Qs as illustrated in Figure 4. • As Qs is the socially optimal output where allocative efficiency is achieved and there is no welfare loss, the market failure is addressed.

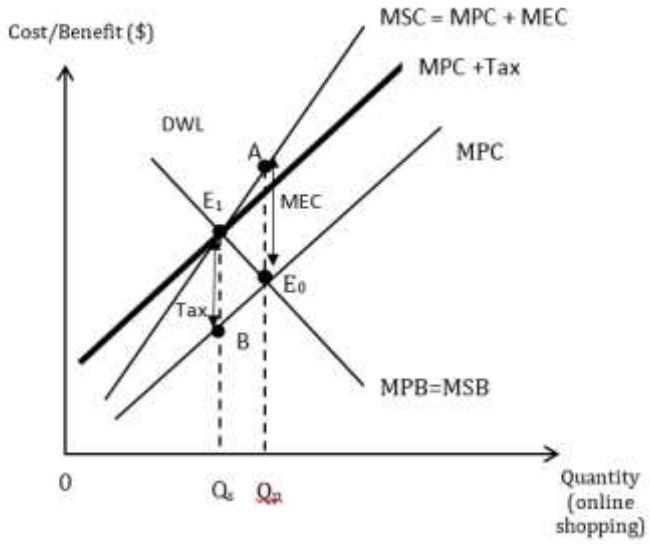


Figure 4: Impact of taxes

<u>Limitations of taxation</u>

- It is difficult to estimate the exact MEC as the impact of discarded packaging waste on the environment is intangible and hard to quantify.
- Hence, the government may under-tax or over-tax, hence underconsumption or overconsumption still persists, which does not eliminate the deadweight loss to achieve allocative efficiency. For instance, if the government were to under-tax, the consumption will still be between QsQp and not fall Qs.

Measure (2): Government could implement a regulation to phase out single-use plastics and encourage the switch to other materials.

- With regulation against the use of single-use plastics, a material used mainly in packaging, the demand for plastics will decrease.
- At the same time of the phasing out of plastics, government should encourage these online shopping platforms to switch to other materials. This can be seen in Extract 3, where Alibaba's logistics arm Cainiao designed recyclable corrugated cardboard boxes that don't have to be sealed with plastic tapes. This is also known as the zipper bag. Alibaba has also offered this packaging to more than its resellers such as Nestle SA and Procter and Gamble Co to use. Cainiao also used 190,000 plastic-free boxes and 3 million biodegradable bags to package their Singles' Day orders this year.

Limitations of Regulation / Legislation of phasing out single-used plastics

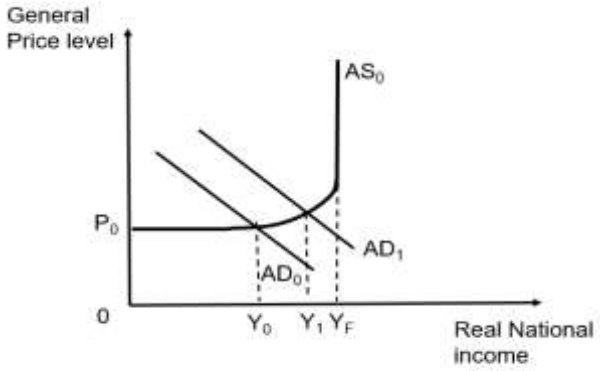
- Regulation is a blunt tool, which may incur high costs of monitoring to be effective, such costs includes the cost of checking on firms to ensure that they are abiding by the regulations and prosecuting them in case of non-compliance.

Evaluative conclusion:

- In the short run, it will be more appropriate to use indirect taxes as a measure to reduce the inefficiency in resource allocation in the online shopping market as it is relatively quick to implement and the least costly way to reduce the over-consumption. Taxation forces the consumers to internalize the external costs to the socially optimal level.

Suggested Answer Outline and Examiners' Comments: Case Study Question 2

(a)	Using Table 2, compare the real GDP growth rate and unemployment rate in the US and Germany over the period 2017 to 2020. [2]
	• Real GDP growth fell for both US and Germany. • Unemployment rate increased for both US and Germany.
(b)	With reference to Extract 4 and Table 2:
(i)	Explain why 'unemployment levels varied dramatically across the countries' and comment whether the data in Table 2 for the year 2019–2020 supports the expected relationship between real GDP growth rate and unemployment rate for the US and Germany. [8]
	Explain: Differences in government's response. From Extract 4, Germany's government-backed schemes kept workers in their jobs'. On the other hand, the US government paid out unemployment benefits to workers who have lost their jobs, further intensifying the loss of jobs. Comment: From Table 1 the data observed for the year 2019-2020 supports the expected relationship between real GDP growth and unemployment rate for the US and Germany i.e a fall in real GDP growth causes a rise in unemployment rate. However, in the US the fall in real GDP growth of 1.3% is relatively smaller than the rise in unemployment rate at 4.4% compared to Germany where the fall in real GDP growth is higher at 4.3% but unemployment rate is lower at 0.7%.
(ii)	Explain two consequences of 'unprecedented levels of government stimulus' on living standards. [4]
	Material SOL (2m) • If a govt raises tax rates to finance its unprecedented levels of government stimulus, this means a fall in disposable income → fall in material SOL Non-Material SOL (2m) The unprecedented levels of government stimulus could mean a rise in transfer payment to households so to alleviate the stress brought on by uncertainty in job security due to COVID-19 → rise in non-material SOL.
(c)	Using AD/AS analysis and Extract 5, explain how 'degradation in land quality' and 'a strengthening currency' are likely to have impacted Thailand's economy in both the short-run and long-run. [8]
	Impact of degradation in land quality **→ ↓SRAS, ↑GPL** • degradation in land quality would lead to ↑cost of production • ↓SRAS →↑GPL **→ ↓LRAS ↓Potential growth** • degradation in land quality lead ↓ Quantity of arable land for crop cultivation of sugar and rice. • ↓ Potential growth

	Impact of Strengthening of currency → ↓(X-M), ↓AD, slowdown in actual growth, ↑cyclical unemployment • Strengthening of Thai Baht • Marshall-Lerner condition holds for Thailand (i.e. $\|PED_X + PED_M\| > 1$). • Strengthening of Thai Baht → ↓(X–M) → ↓AD → more than proportionate ↓real output via the reverse multiplier effect. • slowdown in actual growth, ↑cyclical unemployment since a fall in real output means a fall in demand for factor inputs including labour.
(d)	With reference to Extracts 5 and 6, discuss how 'monetary and fiscal measures' in stimulus packages can help a country avoid an economic catastrophe stemming from the impact of COVID-19. [11]
	Introduction: • Expansionary monetary and fiscal policy would lead to a rise in AD, causing a rise real output and a corresponding fall in unemployment, helping a country avoid an economic catastrophe stemming from impact of Covid-19. Body: Expansionary Monetary Policy: ↓interest rates • From Extract 5, the majority of ASEAN members countries adopting expansionary monetary policy via cutting interest rates would lower cost of borrowing • ↑Consumption expenditure (C) • ↑Investment expenditure (I) • Actual growth and a ↓ cyclical unemployment  Figure 1 Limitation Weak expectations about economic condition • Consumers and firms weak expectations / pessimism about economic outlook. Expansionary Fiscal Policy: ↑G and ↑C Limitation Strain on government finances • Governments with greater financial ability such as richer ASEAN countries (Extract 6) would be able to spend more and therefore stimulate economic activity even more and real output by a larger extent. Evaluative Conclusion

	• Both expansionary Fiscal Policy and Expansionary Monetary Policy will bring about a rise in real national output and stimulate economic activity, helping a country avoid an economic catastrophe stemming from the impact of Covid-19.
(e)	Extract 5 mentioned there are government policies designed to support the growth of the digital economy. Discuss the extent to which growth in the digital economy can achieve inclusive growth. [12]
	Thesis: Growth in the digital economy can achieve inclusive growth • rise in investment expenditure (I) and government expenditure (G) leads to an ↑aggregate demand (AD) → actual growth and fall in cyclical unemployment. • more employment opportunities, narrowing of the income inequality gap • Growth in the digital economy can achieve inclusive growth. **Anti-Thesis: Growth in the digital economy may not achieve inclusive growth** • Structural shift towards the digital technology means a change in the nature of existing jobs. • If lower skilled workers do not reskill or upskill lead to structural unemployment. • Income inequality widens **Evaluative Conclusion** • To a large extent, growth in the digital economy can achieve inclusive growth. • employment opportunities should be created for all segments of the population. • The government could adopt supply side policies