

RAFFLES INSTITUTION
2022 YEAR 6 PRELIMINARY EXAMINATION
Higher 1

ECONOMICS

8823/1

Paper 1

30 August 2022

Additional Materials: Answer Paper

3 hours

READ THESE INSTRUCTIONS FIRST

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

Answer **all** questions.

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

Use the cover sheets and tie your answer to the questions **separately**.

This document consists of **9** printed pages and **1** blank page.



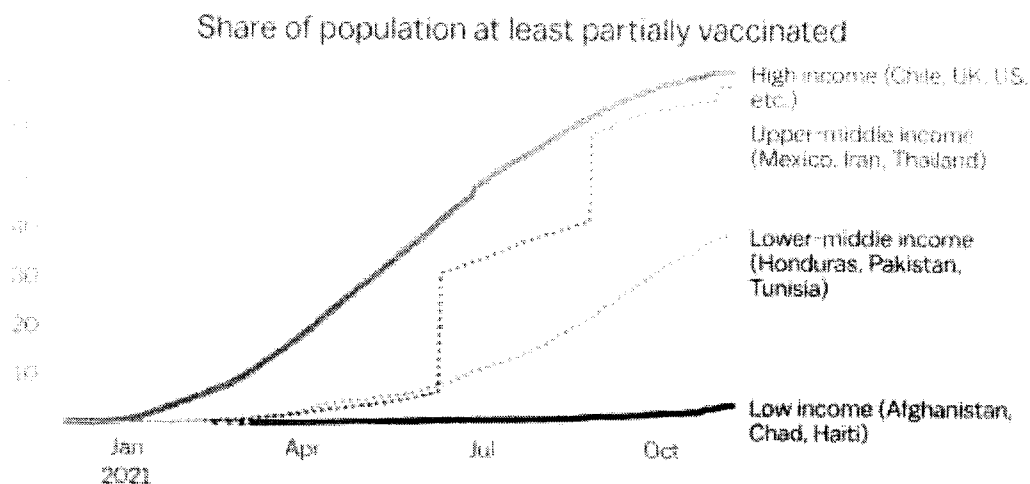
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Answer all questions.

Question 1: Pharma Mia, here we go again

Figure 1: Share of population at least partially vaccinated



Source: <https://www.vox.com>, 9 November 2021

Extract 1: How to think about vaccines and patents in a pandemic

Tech has, potentially, saved hundreds of thousands of lives from the novel coronavirus pandemic. Cutting-edge biotechnology and artificial intelligence (AI) have allowed scientists to develop vaccines for COVID-19 in less than a year, which is the fastest in terms of vaccination development for a major disease.

With any luck, the world will be awash in COVID-19 vaccines by the end of the year. For now, though, it is not, and of the billion or so doses that have been produced the vast majority have been administered in richer countries. Deaths, by contrast, are increasingly concentrated in poorer ones, like India, where only nine in every 100 people have been jabbed, compared with 64 in America. Some governments are floating radical options to remedy the mismatch. India and South Africa proposed that members of the World Trade Organisation waive intellectual-property (IP) protections for COVID-fighting technologies, including vaccines. Increasing the number of manufacturers globally would reduce prices, making vaccines more affordable to poorer countries. It would stabilise supply, minimising disruptions of the kind that occurred when India halted vaccine exports amidst a surge of COVID-19 cases. It is, therefore, essential to remove the legal barriers that hinder the scaling-up of the global vaccine production.

Yet industry interests are right to say that liberating vaccine IP would not unleash a flood of new production. Most of the world's vaccine-making capacity is already in use. Other more challenging constraints on production include the limited availability of raw materials and expertise needed to safely produce doses. Export restrictions by governments also interfere with supply chains.

Arguments for retaining IP protections maintain that patent holders are the rightful owners of their inventions and are thus entitled to existing protections. With respect to COVID-19

vaccines, the claim is that pharmaceutical companies own these vaccines, which are the products of their labour; no one can rightfully take what is theirs.

In reply, the public has invested heavily, and these products are theirs' too. Even when the translational part of product development is carried out by for-profit companies, this would be impossible without enormous upstream public investment. A 2021 review of published research on the technologies used in COVID-19 vaccines found that research and development on these technologies were funded primarily by the governments.

Source: <https://govinsider.asia>, 21 May 2021 and <https://www.economist.com>, 22 April 2021

Extract 2: COVID Vaccines: Will drug companies make bumper profits?

Typically, pharmaceutical companies charge different prices in different countries, according to what governments can afford.

"Right now, governments in the rich world will pay high prices, they are so eager to get their hands on anything that can help bring an end to the pandemic," says Emily Field, head of European pharmaceutical research at Barclays. As soon as more vaccines come on stream, probably next year, competition may well push prices lower, she says.

The World Health Organization meanwhile has warned wealthy countries against hoarding COVID-19 vaccines for booster shots as they try to fight off the new Omicron variant,

Source: *BBC news*, 18 December 2020 and *Reuters*, 9 December 2021

Extract 3: How Should We Allocate Scarce Medical Resources?

The COVID-19 pandemic has also undermined capacity and efforts to address other health needs that are just as pressing as the virus itself, particularly in low-income and middle-income countries (LMICs). Ongoing pressure on governments to act on COVID-19 now to save 'immediately identifiable lives' rather than 'statistical lives at risk' has had and will continue to have both short-term and long-term negative consequences for health. COVID-19 and non-AIDS cancers were the leading causes of death among HIV-positive people in the UK in 2020, with AIDS and cardiovascular disease also cutting lives short. Overall, six out of seven deaths were due to non-AIDS causes.

Source: <https://hbr.org>, 29 April 2020 and <https://www.aidsmap.com>, 21 April 2022

Extract 4: Food Markets During COVID-19

Several countries have imposed food export restrictions during the 2008 food price crisis, and some are now re-introducing them. During COVID-19, 22 countries already initiated export restrictions on one or more food products. The export restrictions are particularly significant when they concern staple foods, especially those in which countries imposing the restrictions hold a sizable share of the global market. While such restrictions are most likely to threaten the food security of those countries with both a low food self-sufficiency ratio and relatively high levels of hunger, export prohibitions may in the long run also hurt the countries imposing restrictions.

Thailand is stepping up its battle against food inflation by extending price caps on dozens of essential goods for another year and funding energy subsidies for an extended period. The government will continue controlling prices of essential goods and services such as rice, sugar, medicines, fertilizers and healthcare services until June next year.

Source: <https://www.bloomberg.com>, 17 June 2022

Extract 5: Polluter bailouts and lobbying during COVID-19 pandemic

Polluting industries around the world are using the coronavirus pandemic to gain billions of dollars in bailouts and to weaken and delay environmental protections. Some of the biggest fossil fuel-producing countries are injecting taxpayer money into propping up polluting industries.

The fossil fuel industry, which already benefits from a \$5 trillion-a-year subsidy, according to the IMF, has had the biggest wins during the coronavirus pandemic in the US and Canada. The controversial Keystone XL pipeline to transport tar sands oil from Canada to the US got the go-ahead, with \$5bn in financial support. Other pipelines continued construction despite the lockdown. Republican senators asked the US federal government to "reduce, delay or suspend" taxes due on oil, gas and coal, while the National Mining Association lobbied to cut \$220m in taxes intended to support coal miners affected by black lung disease.

In the US, aviation got a \$60bn bailout package and the suspension of many taxes. In the UK, major carrier easyJet got a £600m loan. In 2021, the UK government gave airlines nearly a quarter of a billion pounds in free pollution permits in a single year, enough for the entire industry to dodge a carbon emissions cap and trade scheme entirely. The government's generosity meant not only could the aviation industry pollute for free, but airlines were left with 900,000 excess permits that they could keep or sell on.

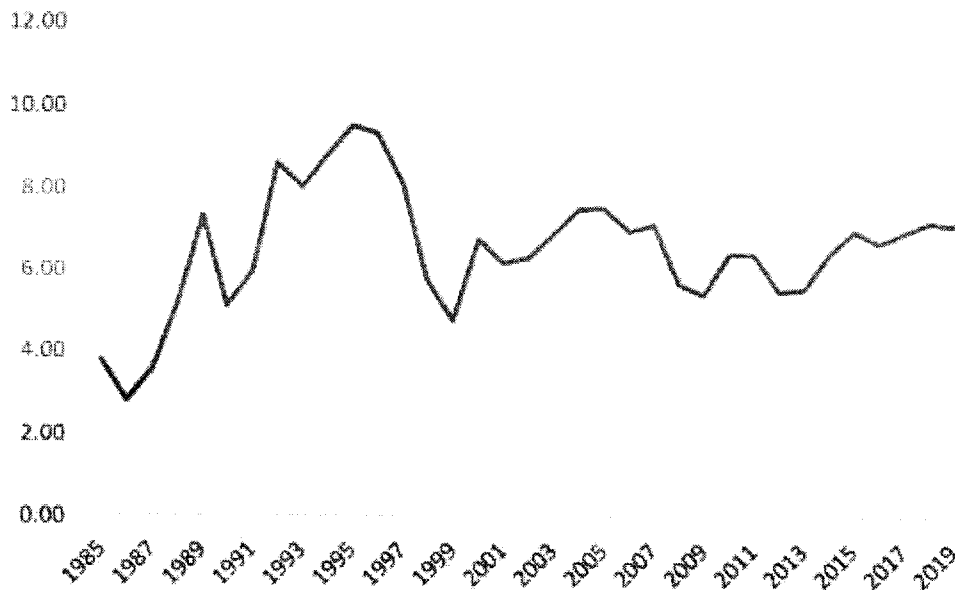
Governments currently face a stark choice: bail out polluting businesses, using that as leverage to impose environmentally-minded reforms, or let them return to their carbon-intensive activities as an economic quick fix. The UK's oil and gas industry warns that 30,000 jobs could be lost because of the pandemic and the current low oil price. The UK air transport sector, which contributes about 4.5% towards its GDP and supports 1.6 million jobs, is also causing contortions among politicians torn between saving existing jobs and conserving the planet. MPs are demanding a conditional rescue for the airline industry, without which tens of thousands of jobs will be lost, in exchange for the firms' agreement to off-set their emissions by, for example, planting trees.

Source: Various

- a. Table 1 shows the share of population at least partially vaccinated. What are the major trends shown? [2]
- b. Assess whether the statement in Extract 1 that “the public has invested heavily, and these products are theirs’ too” is a normative or positive one. [4]
- c. Using demand and supply analysis, to what extent will “waiving intellectual-property (IP) protections for Covid-fighting technologies” make pharmaceutical products more accessible to countries, especially poorer countries. [8]
- d. Explain the meanings of both non-rivalry and non-excludability, and comment on the extent to which new technologies (ideas) to fight Covid-19 has these characteristics. [7]
- e. With reference to Extract 3, explain the concepts of scarcity, choice and opportunity costs that governments face during the Covid-19 pandemic. [3]
- f. Explain one possible unintended consequence in each of the following situation: [6]
- i) “Export prohibitions” in the market for food in a country imposing these restrictions.
 - ii) A “price cap” in the market for an “essential good” like rice.
- g. Taking the aviation industry as an example, explain carefully what is meant by a ‘negative externality’. [3]
- h. Some people claim that governments “propping up polluting industries” by releasing more pollution permits and reducing carbon taxes (Extract 5) does more harm than good to the economy. [12]

Discuss the extent to which you agree with this view.

[Total: 45]

Question 2: The Vietnam Economy**Figure 1: Vietnam - Annual GDP growth (%), 1985-2019**

Source: World Bank, 2022

Table 1: Selected development statistics for Vietnam and Singapore (2019)

	Vietnam	Singapore
HDI country rank out of 187 countries	117	11
Life expectancy at birth (years)	75.4	83.6
Expected years of schooling (years)	12.7	16.4
Mean years of schooling (years)	8.3	11.6
GNI per capita (2017 PPP\$)	7,433	88,155

Source: HDR 2020

Extract 1: Vietnam's economy to overtake Singapore's in 10 years

Vietnam has been a development success story. Economic reforms since 1986, coupled with beneficial global trends, have helped propel Vietnam from being one of the world's poorest nations to a middle-income economy in one generation. Between 2002 and 2021, GDP per capita increased 3.6 times, reaching almost US\$3,700. Vietnam's economy will be bigger than Singapore's in a decade if current growth conditions continue, a DBS report said.

Singapore's economy stands to benefit from Vietnam's continued growth. Growing affluence in Vietnam create tremendous growth opportunities for Singapore companies and investors. More Singapore companies are choosing to invest in Vietnam, riding on and contributing to the country's steady economic growth. Singapore's economy stands to benefit when foreigners from the region visit the country as tourists, to attend its schools or do business, for example.

Source: todayonline.com, 15 Aug 2019

Extract 2: The Cost of Climate Change in Vietnam

Three of Vietnam's characteristics make it particularly vulnerable to climate change.

- High dependence on agriculture, and climate change may negatively impact farm revenues.
- Located at the end of several trans-boundary river basins, and climate change may influence river flow undesirably either through changes in precipitation/runoff patterns or by altering the behavior of upstream countries.
- Low lying coastline is vulnerable to rising sea levels which may lead to population displacement and significant infrastructure damage.

To understand the total cost of climate change, it is important to consider the cumulative effects of the different ways in which different sectors of the economy such as agriculture, transport, and hydropower generation are affected.

Agriculture

When considering only changes in temperature and precipitation, climate change has a fairly small impact on agriculture. The impact is modest for two reasons. First, the projected temperature and precipitation changes to 2050 are not sufficiently large to substantially reduce yields on average. Second, and importantly, agriculture is expected to decline as a share of Vietnam's economy regardless of any effects of climate change.

Transport

In contrast to agriculture where climate variation may influence production in a given year but not necessarily over time, the impact of climate change on roads will be cumulative in nature and consequently may be relatively large. If a road is washed away, not only is the initial investment lost, but the negative effect on infrastructure remains until the road is rebuilt, and rebuilding roads diverts money away from the construction of new roads. Therefore, climate change will reduce the rate at which new road stock is accumulated which in turn slows the rate of productivity growth.

Hydropower

Changing rainfall patterns and higher evapotranspiration in combination with higher demand from farmers for irrigation water could reduce the flow volumes in Vietnam's rivers. Vietnam's hydropower generation capacity is predicted to decrease only slightly by 2041–50.

The implications of the research findings:

- Climate change is unlikely to substantially impact overall growth and development prospects for at least the next few decades.
- The findings suggest that there is a window of opportunity for Vietnam to benefit from preemptive action.
- Even under current climate, upgrading unpaved roads to better withstand precipitation is likely to be more cost-effective over the longterm than not upgrading roads and repairing damages as they occur. With climate change, these benefits are likely to increase.
- Carefully chosen adaptation policies in other areas such as agriculture, water resources, and urban infrastructure design are likely to provide significant benefits.

Source: The United Nations University World Institute for Development Economics Research

Extract 3 Robots on the rise

Robots have become a hot commodity because of the Covid-19 pandemic. Multiple technology manufacturers have reported increased demand for their bots, from drone-like machines that can roam hallways to make deliveries to AI-powered customer service software.

While an increase in automation can be good for educated workers and help to stimulate the economy, studies have shown that low-skilled workers will become more susceptible to unemployment and wage depression. In the last 20 years, jobs lost to automation stopped being replaced by an equal number of similar workplace opportunities.

Source: The Guardian, 27 November 2020

Extract 4 Achieving Vietnam's High-income Aspirations

Vietnam's leadership has set an ambitious goal of reaching high-income status* by 2045. A new World Bank Poverty and Equity report examines what is needed to sustain the upward economic mobility and economic security of the millions who have left poverty.

Poverty in Vietnam declined substantially between 2010 and 2020 amid strong economic growth, education gains, and shifts away from agriculture. However, in the latter half of the decade, consumption growth among richer households outpaced poorer ones, widening the gap between rich and poor. To become a high-income nation by 2045, equitable human capital formation and higher worker productivity are key. To attain the 6.7 percent average annual economic growth rate needed to reach high income status by 2045, growth in productivity per worker will need to increase from 5.3 percent recorded over 2012-2018 to 6.6 percent.

Vietnam will face challenges in transitioning to higher-skilled jobs without continuing reforms in education, skills development, and a transformation of the labor market, which is characterized by low wages, slow growth of high-skilled occupations, high informality, and an aging workforce. Improving the quality of higher education will be an important step.

While rapid economic growth has lifted many people out of poverty, a large group of the population remains vulnerable. Vietnam's social assistance coverage lags that of many East Asia and Pacific neighbors.

Fiscal policy can play a critical role in accelerating Vietnam's progress toward high-income status in an inclusive way. To finance the public investments needed to eliminate poverty and grow the economically secure and middle classes, Vietnam can broaden its tax revenue base (personal income tax, property tax), explore the use of new taxes which both raise revenue and address negative externalities (such as health taxes on alcohol and environmental taxes on carbon). In addition, public expenditures need to be directed in the right way. Inefficient and inequitable expenditures such as electricity subsidies, which encourage wasteful energy use while mostly benefitting richer households, could be redirected for more productive and inclusive purposes (social assistance measures such as direct cash transfers to the poor and unemployment benefits).

Source: World bank, 28 April 2022

* High-income countries are those with GNI per capita > US\$12,695 (World Bank classification as at Jul 1, 2021)

- (a) With reference to Figure 1, summarise the main changes in Vietnam's GDP from 1985 to 2019. [3]
- (b) (i) Explain the difference between GNI and GDP. [1]
- (ii) Extract 1 states that "Singapore's economy stands to benefit from Vietnam's continued growth". [4]
- Explain one way that 'Vietnam's continued growth' can increase Singapore's GDP and one way that it can increase Singapore's GNI.
- (c) With reference to Extract 2 and use of relevant economic analysis, comment whether the Vietnamese government ought to be concerned with the country's vulnerability to climate change. [7]
- (d) With reference to Extract 3, discuss how automation might worsen unemployment and increase income inequality. [8]
- (e) Discuss whether data given in Table 1 is sufficient for economists to compare the living standards between Singapore and Vietnam in 2019. [10]
- (f) Discuss whether supply-side policies aimed at labour markets are the most appropriate policies to help the Vietnam reach its goal of achieving 'high-income status by 2045' in an inclusive way. [12]

[Total: 45]

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	Extract 1	© https://govinsider.asia , 21 May 2021
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	Extract 2	© BBC news, 18 December 2020
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Question 2	Figure 1	© World Bank, 2022
	Table 1	© Human Development Report, 2020
	Extract 1	© Todayonline.com, 15 August 2019
	Extract 2	© WIDER, U.N.U. 'The Cost Of Climate Change In Vietnam'. Recom Brief. Helsinki: UNU-WIDER, 2013
	Extract 3	© The Guardian News and Media Limited, 27 November 2020
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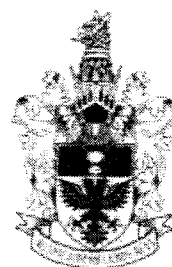
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Examiner's Report

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ECONOMICS

Y6 H1 Prelims 2022

Paper 8823

Case Study 1

- (a) **Figure 1 shows the share of population at least partially vaccinated. What are the major trends shown?** [2]

Suggested Answer:

- ✓ Share of population at least partially vaccinated in all countries regardless of income levels increased between January 2021 and October 2021.
- ✓ The extent of increase was slowest in low income countries but highest in high income countries.
- ✓ The higher the level of income, the higher the share of population at least partially vaccinated.

(Any one of the above responses will gain 1 mark)

- (b) **Assess whether the statement in Extract 1 that “the public has invested heavily, and these products are theirs’ too” is a normative or positive one.** [4]

Suggested Answer:

Clarify ambiguity: Define normative statement and define positive statement

Body paragraphs

- **Explain why the phrase “the public has invested heavily” might be a positive statement**

(Based on Extract 1, last paragraph), the statement might be a positive one, which is a factual statement whose accuracy can be tested by simple appeal to facts. The public has “invested heavily”, when research shows development of vaccines “funded primarily by the governments”. This is a factual statement, as there is a definite amount of money invested and the larger proportion of funds from public investment is a statistic and fact.

- (c) **Using demand and supply analysis, to what extent will “waiving intellectual-property (IP) protections for Covid-fighting technologies” make pharmaceutical products more accessible to countries, especially poorer countries.** [8]

Suggested Answer:

Introduction:

- Clarify ambiguity
 - Clarify what is meant by Covid-fighting technologies – e.g. vaccines
 - Clarify what is meant by “more accessible” - can refer to more residents being vaccinated (increase in quantity of vaccines) and/or more affordable to residents (fall in prices of vaccines)

Body:

Thesis: Waiving intellectual-property (IP) protection for Covid-fighting technologies” can make pharmaceutical products more accessible (more affordable and increasing its quantity) to countries, especially poorer countries because

- Increase in market supply (rightward shift of the supply curve) as the waiver of IP protection for Covid-fighting technologies will lower barriers to entry into the market for Covid-fighting technologies like vaccines “increasing the number of manufacturers globally” (Extract 1) surplus at the original price downward pressure on price as firms reduce prices to get rid of surplus quantity demanded increases because real income increases (movement along demand curve) while quantity supplied falls (movement along the new supply curve) as previously profitable units are now not profitable fall in equilibrium price and an increase in equilibrium quantity of vaccines, ceteris paribus.

Anti-thesis: Limitations of waiving IP protection in achieving its intended aim of increasing accessibility (more affordable and increasing its quantity) of pharmaceutical products to countries, especially poorer countries

- Extent of rightward shift of supply curve might be limited because
 - o Extract 1 states that “there is a “limited availability of raw materials”. This means that many vaccine suppliers in the industry compete to gain access to the limited raw materials, placing an upward pressure on the price of raw materials. This increases the costs of production for vaccine suppliers and for the same price of a vaccine, they now supply a lower quantity, thus shifting the supply curve to the left (supply decreases). This causes an increase in price of vaccines through the adjustment of the price mechanism as explained earlier, thus making it unaffordable for poorer countries to purchase and gain access to it.
- Demand for vaccines is likely to be price inelastic because
 - o “Covid-fighting technologies ... involves the matter of life or death” and have no close substitutes.
 - This means that when demand is price inelastic, an increase in supply will lead to a fall in price which will in turn lead to a less than proportionate increase in quantity demanded.
 - Hence, while the waiver will cause a limited increase in quantity demanded of vaccines, the fall in price of vaccines is more significant.

Evaluation including a conclusion**Mark Scheme:**

Knowledge, Application, Understanding, Analysis		
L1	<i>Glaring conceptual errors throughout OR No use of case evidence at all (purely theoretical response) OR No use economic framework at all (no use of market dd/ss framework)</i>	1-2
L2	<i>One-sided answer, meaning no limitations (AT) OR Lapses in scope OR Lapses in rigour of analysis</i>	3-4
L3	<i>Well-balanced answer with good scope and depth of elaboration</i>	5-6
Evaluation		

E	<i>Make 2 points of judgement that is explained based on T & AT in the body including a conclusion that considers the context of pharmaceutical products, COVID-19 pandemic and poorer countries</i>	1-2
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- (d) Explain the meanings of both non-rivalry and non-excludability, and comment on the extent to which new technologies (ideas) to fight Covid-19 has these characteristics. [7]

Suggested Answer:

Introduction:

- Clarify ambiguity
 - Clarify what is meant by non-rivalry
 - o Consumption of a good by one person does not reduce the amount available for others. This implies that the cost of providing it to a marginal (additional) individual is zero.
 - Clarify what is meant by non-excludability
 - o It is impossible to prevent a non-payer from consuming the good once the good is provided. This leads to the free-rider problem.
 - Clarify what is meant by new technologies to fight Covid-19
 - o E.g. Vaccines, blue-tooth contact tracing tokens and so on

Body:

The ideas behind the new technologies to fight Covid-19 is non-rivalrous because

- Intellectual works falling under the domains of copyright, patent, and trade secret protection are non-rivalrous. As more and more people use an idea/a technology to fight Covid-19, there is not less and less of the idea to go around. Ideas are not depleted by use, and it is technologically feasible for any number of people to use an idea simultaneously once it has been invented.

New technologies to fight Covid-19 like vaccines are rivalrous because

- Number of vaccines is inherently limited by the scarcity of resources used to produce it, hence one consumer using the vaccine will decrease the number of vaccines available for others.

New technologies to fight Covid-19 including vaccines and the ideas behind these new technologies are excludable in the short run because

- Covid-19 fighting technologies or ideas can be made excludable with patents – the one possessing the patent can charge others for using the idea.

New technologies to fight Covid-19 might, however, be non-excludable because

- Once the patent expires, the invention will become non-excludable. The inventor's intellectual property will be part of the public domain; Others will be free to use and market his/her invention. He or she may stop receiving patent-related royalties. Patent-related licensing agreements will no longer be enforceable.

Concluding paragraph (EV):

- Depends on the time frame (short run and long run), type of Covid-fighting technologies and any other ideas.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	Accurate and complete definitions of non-rivalry and non-excludability only OR Glaring conceptual errors throughout OR No use of case evidence at all (purely theoretical response) OR No use economic framework at all	1-2
L2	OR Lapses in scope - EITHER explain why new technologies to fight Covid-19 is non-rivalry OR non-excludability concept (correctly), or vice-versa OR Lapses in rigour of analysis Accurate and complete definitions of non-rivalry and non-excludability and addresses both issues	3-5
Evaluation		
E	Provide alternative perspective(s)	1-2

- (e) With reference to Extract 3, explain the concepts of scarcity, choice and opportunity costs that governments face during the Covid-19 pandemic. [2]

Suggested Answer:

- The aim of the government is to maximise social welfare.
- Opportunity costs is the value of the next best alternative forgone... By choosing to spend more budget on the Covid-19 vaccines over others such as healthcare for non-AIDs and AIDS patients, there is an opportunity costs. The opportunity costs is the value of the lives that could have been saved, who lost their lives due to non-Covid related causes.

- (f) Explain one possible unintended consequence in each of the following situation:

- (i) "Export prohibitions" in the market for food in a country imposing these restrictions.
- (ii) A "price cap" in the market for an "essential good" like rice. [6]

Suggested Answer:**Clarify Unintended consequences**

- An unintended consequence refers to an outcome that was not expected.
- A negative unintended consequence is an outcome that was not expected but turned out to have a negative impact.

Unintended consequences arising from "export prohibitions" in the market for food in the food exporting country

- When export prohibitions are put in place, producers in the country which prohibited exports will experience an unplanned rise in inventory levels. This creates a surplus in the domestic market because there is a large quantity of food exports not allowed to leave the country. This causes a surplus at the current market price, causing a downward pressure on price as producers reduce their prices to get rid of the surplus. Prices fall until the surplus is eliminated. The fall in price will lead to a less than proportionate increase in quantity demanded for rice because the demand for rice is price inelastic as it is habitually consumed. Hence total revenue generated from the sale of rice falls. Assuming costs remain unchanged, profits will fall.
- In the long run, since producers see an unplanned rise in inventory levels, they will scale back production to minimise losses from selling their products at reduced prices. In the long run, this may result in a shortage of food in the country as producers are no longer producing enough food. This can cause price levels to increase, leading to inflation of food prices in the long run.

Consequences arising from a price cap in the market for an “essential good” like rice

- A “price cap” for an “essential good” will lead to illegal activities such as a black market. Due to the price cap (where the maximum price is set below the free market equilibrium price), quantity demanded (Q_d) is more than quantity supplied (Q_s), resulting in a shortage at P_{max} . However those who are able to obtain Q_s quantity of rice can sell it in a black market at the maximum price consumers are willing and able to pay (P_b). This is because there will definitely be consumers who are willing and able to purchase rice at a price higher than P_{max} because rice is a habitually consumed food item.

Mark Scheme:

- Max 3 marks for each part

- (g) Taking the aviation industry as an example, explain carefully what is meant by a 'negative externality'. [3]

Suggested Answer:

The aviation industry only produces according to its own self-interests which are profit-maximising. They thus produce at the free market equilibrium and do not account of external costs they impose on third parties. By producing and allowing flights to take off, they produce a lot of pollution which (reduces air quality) and can negatively affect the health of people living near the airport, leading to diseases (e.g. respiratory problems) that must be treated medically, incurring a cost for these individuals that are not involved in the transaction between the industry and its consumers, (but these third parties are not be compensated by the aviation industry). This is a negative externality from producing air travel.

Mark Scheme:

- correct definition for negative externality
- explanation about what is meant by a negative externality in the context of the aviation industry

- (h) Some people claim that governments “propping up polluting industries” by releasing more pollution permits and reducing carbon taxes (Extract 5) does more harm than good to the economy.

Discuss the extent to which you agree with this view.

[12]

Suggested Answer:

Introductory paragraph: Clarify ambiguity:

- Clarify what is meant by more harm than good to the economy:
 - o Whether the impact on macroeconomic goals (including actual and potential economic growth and/or sustainable growth, unemployment and inflation) and impact on micro goals (efficiency and equity) are positive or negative

Body paragraphs

- **Explain why “propping up polluting industries” by releasing more pollution permits and reducing carbon taxes does harm to the economy:**
 - o Worsens allocative inefficiency as these polluting industries generate negative production externalities which is a source of market failure
 - o Results in unsustainable economic growth in the long run
- **Explain why “propping up polluting industries” by releasing more pollution permits and reducing carbon taxes does good to the economy:**
 - o Reduces cost-push inflation and reduces demand-deficient unemployment and promotes actual economic growth in the short run, which helps to boost economic recovery
 - o By releasing pollution permits and reducing taxes, the government decreases the costs of running an aviation business and other businesses, and incentivizes employers to keep employees on the payroll, giving them more stable jobs as well as enabling them to contribute to GDP and thus the economy by more fully utilizing the productive capacity of the economy.

Evaluation including a conclusion**Mark Scheme:**

<i>Knowledge, Application, Understanding, Analysis</i>		
L1	<ul style="list-style-type: none"> • <i>Conceptual errors in analysis throughout or descriptive responses throughout</i> • <i>No use of case evidence at all</i> • <i>No use of economic tools of analysis</i> 	1 – 2
L2	<ul style="list-style-type: none"> • <i>Lapses in rigour and use of case evidence</i> • <i>Lapses in scope of coverage</i> • <i>One sided answer</i> 	3 – 5
L3	<ul style="list-style-type: none"> • <i>Good rigour, scope, use of case evidence to support economic analysis</i> • <i>1 source of market failure (with economic analysis) and policies stated in the question</i> 	6 – 9
E	<i>Make a judgement on whether the above policies are able to achieve both micro and macroeconomic aims during Covid-19 pandemic.</i>	1 - 3

Case Study 2

- (a) With reference to Figure 1, summarise the main changes in Vietnam's GDP from 1985 to 2019. [3]

Overall trend [1m]

- Vietnam consistently recorded positive annual GDP growth rates hence GDP rose from 1985 – 2019.

Refinement [additional 2m – 1 mark for each correct observation]

- GDP grew at an increasing rate from 1985 to 1995.
- GDP grew at a falling rate from 1996 to 1999.
- GDP grew fastest in the period from 1992 to 1998 (at least 8%).
- GDP grew at a steady rate of around an average of 6-7% between 1999 to 2019.

(b) (i) **Explain the difference between GNI and GDP.** [1]

GDP is the total value of all final goods and services produced within the geographical boundary of a country, regardless of whether resources used in production were local or foreign owned. On the other hand, GNI is the total income received by the residents of a country, regardless of where the factors of production are within or outside the country. OR

GNI = GDP + Net factor income from abroad i.e. income earned by the country's factors of production residing overseas is added to GDP, while income earned by foreign factors of production residing within the county is deducted from GDP.

(ii) **Extract 1 states that "Singapore's economy stands to benefit from Vietnam's continued growth".** [4]

Explain one way that 'Vietnam's continued growth' can increase Singapore's GDP and one way that it can increase Singapore's GNI.

Explain how 'Vietnam's continued growth' increase in GDP

'Singapore's economy stands to benefit when foreigners from the region visit the country as tourists, to attend school or do business'

- Vietnam's continued growth Higher income Higher purchasing power increase demand for goods produced in SG or increase X Increase AD due to increase net exports Increase SG's GDP.

Explain how 'Vietnam's continued growth' increase in GNI

'Growing affluence in Vietnam creates tremendous growth opportunities' and 'More Singapore companies are choosing to invest in Vietnam, riding on... the country's steady growth.'

- Vietnam's continued growth Higher expected returns in investment / higher expected profits earned by SG firms who set up in Vietnam when profits are repatriated from Vietnam Increase SG's GNI.

(c) **With reference to Extract 2 and use of relevant economic analysis, comment whether the Vietnamese government ought to be concerned with the country's vulnerability to climate change.** [7]

Approach:

Vietnamese government ought to be **concerned**

Due to negative **impact on the economy** In terms of attainment of the **3 macroeconomic goals**

Thesis: The Vietnamese government ought to be concerned about climate change as it would result in negative macroeconomic impact on the economy

- Climate change changes in weather conditions such as 'temperature and precipitation' reduce yield of farm products price of agricultural products

- As Vietnam has 'high dependence on agriculture' loss of export competitiveness of agricultural products Fall in export revenue Fall in net export (assuming import expenditure unchanged) Fall in AD
- This will lead to an unplanned surpluses and firms will reduce output and hire less worker. When workers' income falls fall in income-induced consumption, triggering further decreases in AD and income RNY falls more than proportionately than the initial fall in AD Fall in actual economic growth.
- Moreover, climate change 'significant infrastructure damage' such as 'roads [being] washed away' fall in productivity and efficiency e.g. firms transporting goods and services will not have to use alternative longer routes fall in productive capacity Fall in AS reduction in the maximum amount of goods and services that can be produced Fall in potential economic growth.
- Climate change may impede Vietnam from achieving sustained economic growth.

Anti-thesis: However, the Vietnamese govt need not be overly concerned

- Extract 2 also suggested that 'projected temperature and precipitation changes to 2050 are not significantly large to substantially reduce yields'. This means that the fall in supply is unlikely to be large and thus, Vietnam may not lose its exports competitiveness for the agricultural products Smaller extent of fall in AD
- In terms of road infrastructure, 'Vietnam can take preemptive measures' and 'upgrade unpaved roads' improving quality of roads which means that the fall in AS is mitigated.
- Climate change is unlikely to substantially impact overall growth and development for at least the next few decades Sufficient time to implement policies to prevent negative effects.
- Reasoned conclusion

(d) With reference to Extract 3, discuss how automation might worsen [8] unemployment and increase income inequality.

Suggested outline:

Introduction:

Increase in automation 'good for educated workers' while 'low-skilled workers will become more susceptible to unemployment and wage depression'

Explanation of how 'automation' might worsen unemployment

- Increased reliance of labour replacing equipment e.g 'drone-like machines... to make deliveries' to 'AI-powered customer service software This is due to machines offering lower cost or are more cost effective or reliable than labour, as shown during Covid pandemic.
- These machines have replaced e.g. delivery workers and customer service staff workers, most likely low-skilled, are laid off.
- These workers will seek job opportunities in industries where jobs are available. However, if they lack the relevant skills to enter the industry i.e. they are occupationally immobile Their existing skill set does not match those required in available job Mismatch of skills increase structural unemployment.

Explanation of how 'automation' might increase income inequality

- Automation is "good for educated workers". The increased use of advanced equipment e.g. AI-powered software requires the skill sets of high-skilled and educated workers such as robot programmers or those with the skills to operate more complex machinery Increase demand for high-skilled workers Shortages Drive up wage of high skilled workers.

- In contrast, low-skilled workers are 'susceptible to wage depression'. Low-skilled workers are unlikely to possess the necessary skills and unable to compete with robots in terms of cost
Decrease demand for low-skilled workers Surplus Fall in wage for low-skilled workers.
- Increase wage for high skill while depressed wages for low-skill workers widen income gap, hence increasing income inequality.

Possible evaluation:

- However, automation might not necessarily lead to increased unemployment and income inequality.
- If the government were to implement policies which encourage workers to retrain and acquire new skills, this could allow them to remain employed as they can move into industries where their skillset match the job opportunities. Moreover, employers will value more highly-skilled workers and their wages will rise.
- In conclusion, there will be increased unemployment and income inequality unless the government adopts policies to mitigate the effects of automation. Since retraining workers and equipping them takes time to take effect, it is likely that there will be increased unemployment and income inequality in the short run, but this can be mitigated in the long run when the policy takes effect.

Mark Scheme:

L2	<ul style="list-style-type: none"> ● Covered both the main aspects of the question i.e. how automation may lead to both worsened unemployment and increased income equality. ● Rigour is demonstrated in economic analysis. 	4 – 6
L1	<ul style="list-style-type: none"> ● Only one aspect covered i.e. increased unemployment or increase income equality. ● Economic analysis is lacking in depth. 	1 – 3
In addition, up to a further 2 marks for valid evaluative comment. Focus on the 'might' aspect.		

- (e) **Discuss whether data given in Table 1 is sufficient for economists to compare the living standards between Singapore and Vietnam in 2019. [10]**

Introduction:

Standard of living comprises both material and non-material aspects.

- Material SOL refers to the quantity of goods and services available for consumption by the average person in the economy in a given time period.
- Non-material SOL refers to the qualitative aspects of welfare e.g. access to quality healthcare, education and living environment in general.

Development/Main body:

To support the view that data given is sufficient to compare living standards between an average Singaporean and Vietnamese.

- Table 1: Singapore's GNI per capita (2017 PPP\$) is 88,155 while Vietnam's is 7,433.
 - GNI per capita = GNI/total population, measuring the average income per person in the population. A higher GNI per capita in SG suggests higher average income in SG.
 - Moreover, the GNI is PPP\$ adjusted, accounting for differences in cost of living in both countries. Hence a given dollar should be able to buy the same quantity of goods in both countries.

- o A higher GNI per capita (PPP\$) hence implies that an average Singaporean will have a higher purchasing power which allows them to consume a higher quantity of goods and services to satisfy their material needs and wants. Therefore, an average SG citizen may seem to have a higher material SOL than an average Vietnamese.
- Table 1: SG's life expectancy at birth of 83.6 is higher than Vietnam's of 75.4. This implies that there is better nutrition and higher quality of healthcare in SG than Vietnam. Higher non-material SOL since more of SG citizens are able to live a longer and healthier life.
- Table 1: SG's expected year of schooling and mean years of schooling at 16.4 years and 11.6 years respectively are also higher than that of Vietnam's (12.7 and 8.3 years respectively). Higher non-material SOL in SG than Vietnam as an average SG citizen has better access to education and better ability to acquire knowledge.

To support the view that data given is insufficient

- Additional information required. Below are some examples.
 - o Gini coefficient to measure income inequality.
 - o A Gini coefficient of zero expresses perfect income equality, where everyone has the same income while a Gini coefficient of 1 expresses maximal inequality, where only one person has all the income
 - o If SG has a higher Gini coefficient than Vietnam, this reflects that those from the lower income group in SG may not have benefitted in terms of higher income level and purchasing power.
- Number of hours spent on work per week.
It may be the case that the high GNI per capita meant that Singaporeans work long extended hours at the expense of family and leisure time. Family life takes its toll as reflected by the falling fertility rate which partially contributed to the ageing population problem.
- Data on environmental degradation. E.g. Higher CO₂ emissions in the 2 countries
 - o A higher pollution level environmental degradation may lower the health of an average citizen lower non-material SOL.

Conclusion:

Take a stand:

- On the whole, the data given in Table 1 is sufficient to draw conclusions that an average SG citizen has a higher SOL compared to an average Vietnam citizen.

Justify your stand:

- SG's GNI per capita is more than 10 times that of Vietnam's. This suggests that an average SG citizen is definitely better off than an average Vietnamese, since it is unlikely that income inequality is so large in SG that it invalids the GNI per capita data. Hence, even when Gini coefficient data is unavailable, appropriate comparisons can be made between the 2 countries in terms of material SOL.
- Nonetheless, it would be useful to supplement the data given in Table 1 with key information on NMSOL such as number of working hours, work-life balance, stress levels etc. Since as a country becomes more developed, these outcomes begin to matter more.

Mark Scheme:

L3	<ul style="list-style-type: none"> • An answer that assesses both the material and non-material aspects of SOL with relevant use and interpretation of data. <ul style="list-style-type: none"> • how GNI in PPP\$ is able to capture material SOL by overcoming differences in population size and cost of living. • how the given data on education and health and can help compare non-material aspects • other important data that would help better compare SOL between the two countries. 	5 – 7
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L2	An answer with limited development and discussion, brief recognition of importance of material and non-material aspects of SOL. Or considered only material or non-material SOL but not both.	3 – 4
L1	Smattering of valid points.	1 – 2
In addition, up to a further 3 marks for valid evaluative comment. This should focus on the adequacy of given data to compare standard of living between countries.		

- (f) Discuss whether supply-side policies aimed at labour markets are the most appropriate policies to help the Vietnam reach its goal of achieving 'high-income status by 2045' in an inclusive way. [12]

Introduction:

- Define inclusive growth: Inclusive growth refers to a rate of growth that is sustained over a period of time, is broad-based across economic sectors, and creates productive employment opportunities for the majority of the country's population.

Explanation of how supply-side policies aimed at labour markets can help increase inclusive growth in Vietnam

- From Extract 4, for Vietnam 'To become a high-income nation by 2045, equitable human capital formation and higher worker productivity are key'
- Supply-side policies aimed at labour markets such as subsidies for education and training can help to develop human capital and improve labour productivity.
- When workers in Vietnam engage in training Upskilling of workers with better qualifications and skills to handle advanced equipment and machinery. This will mean that they can perform tasks more efficiently increase in output per unit worker hence increase labour productivity.
- An increase in productivity quality of the workforce improves increase productive capacity.
- Furthermore, re-training and skills upgrading of workers can also raise labour productivity. If labour productivity growth outpaces wage growth, unit labour cost is lowered as well, and overall AS curve shifts outward Increase both actual and potential economic growth sustained economic growth
- Moreover, improved training opportunities, especially vocationally oriented education can also improve the occupational mobility of workers in the economy more workers are now equipped with relevant skills to access employment opportunities or land higher paying jobs. Hence inclusive growth is achieved.

Limitations of supply-side policies aimed at labour markets

- However, burden of financing such supply-side measures may pose to be a huge financial burden on the Vietnamese government.
- Additionally, skills training and upgrading is long term in nature as it takes time to acquire new skills and to be adept at them, hence the policy may not be as effective in addressing the issues and may only materialize in the long term.

Explanation of how fiscal policy is also necessary to increase inclusive growth in Vietnam

- Extract 4 also suggest that 'fiscal policy can play a critical role in accelerating Vietnam's progress toward high-income status in an inclusive way' where government expenditure spent on 'public

investments' are 'needed to eliminate poverty and grow the economically secure and middle classes'.

- For example, the Vietnamese government may need to spend more on improving transport such as good road network or ensuring reliable electricity supply in the poorer (usually less urbanized) areas of the country such that it raises productivity across industries and firms outward shift of AS potential economic growth.
- Moreover, these public investments attract FDI increase AD
- Increase AD Unplanned shortages Firms raise output Generates job opportunities and hence stronger demand for labour, the main and often the sole asset of the poor increase access to income for the previously unemployed inclusive EG.
- Via the multiplier process, workers who earned income increase income induced C additional increase in AD which in turn generates jobs in wider spectrum of sectors increase Y increase EG in an inclusive manner.
- Extract 4 also suggests that the Vietnamese government should 'explore the use of new taxes' to fund the public investments as well as ensuring that 'public expenditures [are] directed in the right way'. E.g. the Vietnamese government would need to '[scrap] subsidies for electricity... [and] channeled [the funds] to increase unemployment benefits and other forms of transfer payments'.

Limitations of fiscal policy

- Similar to supply-side policies aimed at labour markets, public investments require large amount of funding.

Discussion on 'most appropriate'/Conclusion

- Given that both public investments and subsidies for training entails a large amount of funding, the Vietnamese government must ensure that fiscal policy reforms are implemented to ensure that they have sufficient budget to implement them.
- Moreover, appropriate public investment will increase productivity, hence actual and potential growth in the Vietnam. Government transfer payments to the poor are also vital to improving inclusive growth.
- In contrast, supply-side policy such as subsidies for education and training of workers, on the other hand, take a long time to bear fruit. While it can help promote inclusive growth in the long run, it cannot address the short run concerns of those in currently in poverty.
- As such fiscal policy would be a more appropriate policy to help the Vietnam reach its goal of achieving 'high-income status by 2045' in an inclusive way.

Mark Scheme:

L3	<ul style="list-style-type: none"> • An answer that explains how both supply-side policies aimed at labour markets and at least one other policy are used to increase actual and/or potential growth in an inclusive way. 	6 – 9
L2	<ul style="list-style-type: none"> • An answer that explains how policies to increase actual and/or potential growth OR policies that reduce income inequality or improve inclusivity. 	3 – 5
L1	<ul style="list-style-type: none"> • Vague, descriptive, list-like answer 	1 – 2
<p>In addition, up to a further 3 marks for valid evaluative comment.</p>		

*******END*******