

**TEMASEK JUNIOR COLLEGE**

**2022 JC2 PRELIMINARY EXAMINATIONS**

**Higher 2**



**ECONOMICS**

**9757/01**

Paper 1

**24 August 2022**

**2 hours 15 min**

Additional Materials: **one 12-page** answer booklet, **one piece** of writing paper for rough work

**READ THESE INSTRUCTIONS FIRST**

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

Answer **all** questions.

Indicate the question number clearly in your answers.

Start Question 1 and Question 2 on a fresh page.

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

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

## Question 1: Government intervention in the market for rare earths

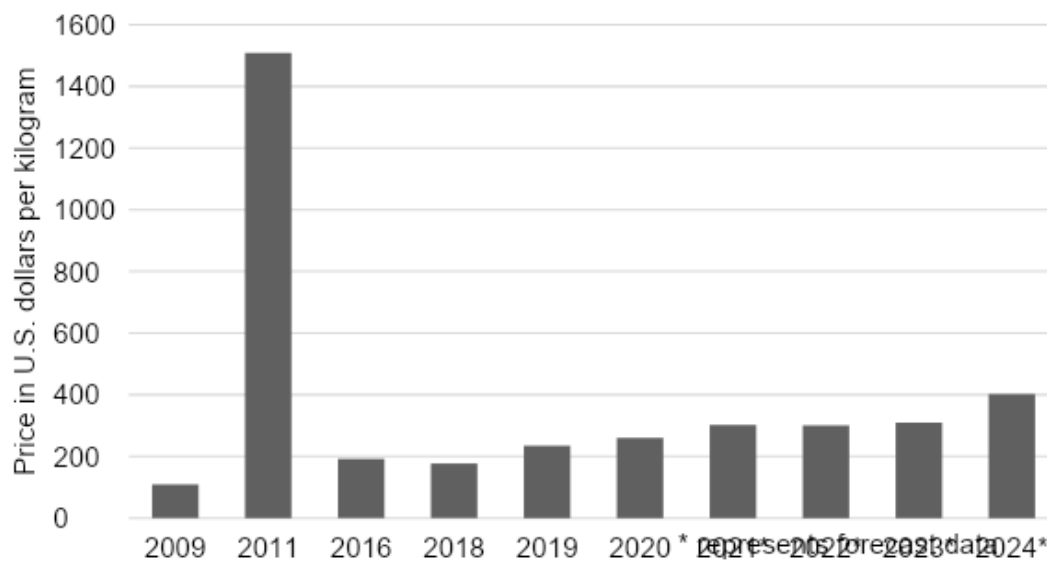
### Extract 1: The uses of rare earth elements

Rare earth elements (REEs) is a collective term for seventeen chemical elements in the periodic table. Despite the name, REEs are not very rare and found far more commonly in the Earth than most precious metals such as gold and platinum. However, extracting, processing and refining REEs are tricky for a myriad of technical and environmental reasons.

Rare earth metals like dysprosium and terbium play a critical role in defense, technology and electric vehicles. Neodymium and praseodymium are some of the most sought-after rare earth elements crucial in products such as motors, turbines and medical devices. Demand for them exploded in recent years with the growth of technology and will continue to climb amid the ongoing race to create a large electric vehicle market.

Source: *CNBC*, 17 April 2021

**Figure 1: Price of rare earth dysprosium oxide, 2009 – 2024 (US\$ per kilogram)**



Source: *statista.com*

### **Extract 2: The harms of rare earth mining**

Beginning in the 1990s, rare earth mining took off in the region located in Southeast China about 300 miles north of Hong Kong. As China began to produce more smartphones, wind turbines, electric vehicles, and other high-tech products requiring REEs, the mining intensified. But the removal of these elements from the earth's crust, using a mix of water and chemicals, caused extensive water and soil pollution.

"To us as an environmental group, we hope that the environmental damage can stop and that these external [pollution costs] could be internalized in the cost" of products, Ma Jun, a leading Chinese environmentalist and director of the Institute for Public and Environmental Affairs, said in a phone interview.

Ma's fear is that other regions around the world could suffer a similar fate if they become, like China, the supplier of cheap rare earth elements, with little or no environmental price attached. "I hope that we don't miss this opportunity," he said. "There is talk that similar mining could be started in Africa and other regions, so we should not repeat the same mistakes."

Deng Zhiyong, director of the Longnan Environmental Protection Department, said in an interview that the mining has dumped excessive amounts of ammonia and nitrogen compounds into the region's ground and surface water. Other pollutants, such as cadmium and lead, are also released during the mining process; long-term exposure to these metals poses health risks.

Source: *Yale School of the Environment*, 2 July 2019

### **Extract 3: China's stranglehold of the rare earths supply chain will last another decade**

Western economies are set to remain heavily dependent on China for the refining of REEs for the next decade. For three decades, the Chinese government has had a strategic vision for the REE industry – something the West has lacked – and it now dominates the supply chain.

In 2021, China made up 54% of global REE mine supply, followed by North America at 18%, the rest of Asia at 14%, Australia at 12% and Europe at 2%, according to Roskill. However, its dominance of neodymium's global mine supply is higher, at 62%. In 2021, China accounted for 85% of the global supply of refined REEs, followed by the rest of Asia at 13% and Europe at 2%, according to Roskill. In the case of neodymium, it made up 84% its refined supply.

Furthermore, China has a more than 90% share of the global production of downstream rare earth products and technologies, including magnets, according to consultancy Tahuti Global.

Source: *Mining-technology*, 26 Apr 2022

#### Extract 4: Cleaning up mining

There are several things that need to happen regarding the environmental impact of rare-earth mining. First, there should be efforts in research and development toward products that rely less on rare-earth metals. For example, Honda is developing hybrid cars that are mostly free of rare-earth metals.

Second, there needs to be an emphasis on finding more sustainable options for extraction.

Third, diplomatic channels should be used to incentivise a modernising reform of China's lax regulation of rare earth mining and an improvement of standards for environmental protection. Only then will associated environmental cleanup and preservation costs be added to the cost of operating mines.

Lastly, the United Nations could pursue global standards for rare-earth mining.

All of these steps will go toward preventing additional damage to the Earth. However, existing damage must be cleaned up. China is taking steps toward fixing the issues resulting from decades of rare earth mining. These remediation efforts involve processes like pumping contaminants out of groundwater and pumping fresh water back in to dilute toxin concentrations. The country is also enacting tougher regulations to stem the damage done by existing mining companies. For example, companies must upgrade their equipment to more modern, efficient technology and must mine for metals using more sustainable practices.

Source: *earth.org*, 14 July 2020

#### Questions

- (a) With evidence from Extract 1,
- (i) What can you conclude about the price elasticity of supply of rare earth elements (REEs)? [2]
  - (ii) Using a demand and supply diagram, explain the likely change in the REEs market in the future. [4]
- (b) With reference to Figure 1, summarise the trend of the price of dysprosium oxide during the period 2009 – 2024. [2]
- (c) Explain the meaning of a positive statement and a normative statement and identify an example of each type from Extract 2. [4]
- (d) To what extent would rare earth mining improve the standard of living of people in China? Discuss. [8]
- (e) Discuss the view that tougher government regulations for mining companies to 'upgrade their equipment to more modern, efficient technology in rare earth mining' (Extract 4) is the best policy to alleviate the negative effects in the extraction of rare earth metals. [10]

[Total: 30]

[Turn Over]

## Question 2: Opportunities and challenges in Southeast Asian economies

**Table 1: Selected economic indicators of Indonesia from 2016 – 2020**

	2016	2017	2018	2019	2020
Real GDP Growth rate (% change in Real GDP)	5.0	5.1	5.2	5.0	2.5
Consumer Price Inflation (% change in Consumer Price Index)	3.5	3.8	3.2	3	1.9

*Source: World Bank, 2022*

### Extract 5: Vietnam economy is Asia's shining star during COVID-19

Vietnam has minimised the economic damage from Covid-19 and is the only country in Southeast Asia on track for growth this year. Its economy is expected to grow 2.4% this year, according to latest figures from the International Monetary Fund. The IMF credited “decisive steps to contain the health and economic fallout from COVID-19” for the country’s success. Vietnam has had only 1,288 Covid-19 cases and 35 deaths. The IMF is predicting a strong economic recovery in 2021, with growth projected to strengthen to 6.5% “as normalisation of domestic and foreign economic activity continues.”

The country has seen slower growth this year and its once-thriving tourism sector has taken a particularly bad hit, but it has avoided the worst economic effects of the pandemic. A number of factors have cushioned the blow, according to Michael Kokalari, chief economist for Vinacapital, a Vietnam-focused investment company. Vietnam’s exports to the US have increased by 23% in the first three quarters compared to the same period in 2019, with electronics exports up 26%. The ongoing US-China trade war has made China a less attractive place to manufacture, with a number of tariffs in place on exports. Many multinationals have started operating in Vietnam, including global technology leaders like Apple and Samsung. Apple now has plans to manufacture its high-end AirPods studio earphone in Vietnam. The pandemic has also prompted more companies to consider manufacturing there, because of the need to diversify their supply chains, said Mr Kokalari. “When Covid comes, you thought you had a global supply chain, and you find out that you only have a China supply chain and you can’t produce. Well that’s a much more urgent, emotionally catalysing problem,” he said.

*Source: BBC, 19 November 2020*

### Extract 6: Is low growth the new normal for Singapore?

When the global financial crisis hit Singapore in 2009, the shock left the country with real GDP growth of 0.1 per cent. But the economy rebounded quickly. The following nine years delivered an average annual growth of 5.2 per cent, owing largely to a sharp rebound in 2010, registering a growth of 14.5 per cent. The mood is discernibly more downbeat this time. The Government now forecasts that the economy will grow only within the range of 0.5 to 2.5 per cent in 2020. Is low growth the new normal for Singapore? As a small, open economy heavily dependent on external demand, Singapore’s national output is subject to the vagaries of the global economy. One reason to think we are less likely to see a strong recovery this time around is that the

US-China trade war is affecting the Singapore economy by disrupting global supply chains. Although many of the tariffs (taxes on imported goods) imposed by the US on Chinese goods do not directly affect Singapore, there are spillover impact due to Singapore's role in global supply chains. For example, Singapore companies that produce intermediate goods used as inputs in the production of China's exports to the US may see a lower demand for their goods.

Singapore's continued growth will be tested as it faces bigger challenges on the horizon including an ageing population and weakening productivity. The growth of Singapore's total real GDP today also depends on labour force growth, and capital investment. The number of citizens in the working ages of 20 to 64 years will start to decline from this year onwards due to more retiring and fewer entering the workforce, as the number of babies dropped to an eight-year low in 2019. Ageing reduces economic growth as there are fewer new workers to boost output. Workforces in some 40 countries are already shrinking because of demographic change. Technology may at some point overcome the stifling effect of ageing. Some experts find that when young workers are sufficiently scarce, manufacturers invest in more automation, and experience faster productivity growth as a result, measured as an increase in output produced per unit input.

*Source: Various*

#### **Extract 7: MAS eases monetary policy as economy reels from impact of COVID-19**

Singapore's central bank eased monetary policy as expected on Monday (Mar 30), as the economy reels from the impact of a novel coronavirus pandemic. The Monetary Authority of Singapore (MAS) said with the deterioration in macroeconomic conditions and expectations of a weaker outlook, the Singapore dollar nominal effective exchange rate (S\$NEER) policy band has "depreciated to a level slightly below the mid-point of the policy band". "MAS will adopt a zero per cent per annum rate of appreciation of the policy band starting at the prevailing level of the S\$NEER," it added. The COVID-19 pandemic has led to a severe contraction in economic activity in Singapore and globally, due to the combination of supply chain disruptions, travel restrictions imposed in many countries and a sudden decline in demand. Looking ahead, MAS expects global economic growth to stall or even contract in the first half of 2020, with "significant interruption" to economic activity in most of Singapore's major trading partners. Growth in the trade-related industries will be weighed down by the decline in external demand and supply chain disruptions.

*Source: Channel News Asia, 30 March 2020*

#### **Extract 8: Economic prospects in Indonesia**

Disruption from COVID-19 and developments in commodity and financial markets will have severe implications for Indonesia in 2020. As events unfold, Indonesia's key trade partners already expect severe impacts on their economies. Domestic demand is likely to weaken as business and consumer sentiment falls. GDP growth is accordingly forecast at 2.5% this year. As the global economy recovers in 2021 and investment reform gains traction, growth is forecast at 5.0%.

Earnings from exports of goods and services are expected to contract for a second year in 2020. As the COVID-19 outbreak halts production in economies that import Indonesian commodities, earnings from petroleum, palm oil, and coal are likely to suffer this year. Travel bans and flight cancellations will hit tourism receipts. Signs already show domestic consumer confidence beginning to decline. The impact of the COVID-19 outbreak on consumer sentiment and

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spending is likely to be strong. Unless the government successfully contains the outbreak, household spending on health care could jump, productivity fall, and discretionary spending shrink.

Growth in Indonesia has averaged 5% since 2015, yet much higher growth is needed for the country to achieve its ambition to join the world's five largest economies by 2045. The main factor constraining potential growth has been stagnant productivity partly attributed to limited technological sophistication. To exploit the benefits of new technologies, companies and workers need to have the know-how to absorb and adopt them. However, Indonesia currently lacks such workers. Many firms struggle to find workers with the right competencies in software and information technology services, inducing them to move to other countries. The share of the population in the 25–34 age group with a tertiary education is still relatively low at 16.1%, below that of other countries in the Group of 20.

*Source: Asian Development Outlook 2020,*  
[www.adb.org](http://www.adb.org)

### Questions

- (a) Explain what is the Consumer Price Index (CPI). [2]
- (b) Using Table 1, describe the trends in real GDP and general price level in Indonesia from 2016 to 2020. [2]
- (c) With reference to Extract 5 and using a diagram, explain the impact of an increased number of multinationals operating in Vietnam on the exchange rate of the Dong (Vietnam's currency). [4]
- (d) With reference to Extract 5 and the use of a diagram, explain **one** reason why a firm like "Apple now has plans to manufacture its high-end AirPods studio earphone in Vietnam". [4]
- (e) Using economic analysis and based on the evidence provided, assess whether open economies such as Vietnam and Singapore would gain or lose from the US-China trade war. [8]
- (f) Assess whether tackling falling growth rate is more important than raising productivity. [10]

[Total: 30]



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