NANYANG JUNIOR COLLEGE

2023 JC2 Preliminary Examination

H2 ECONOMICS

Paper No: 9570/01

30th August 2023
Wednesday

Time : 0800 – 1030 hrs
Duration : 2 hours 30 mins

INSTRUCTIONS TO CANDIDATES

Do not turn over this paper until you are told to do so.

Write your name, class and the name of your Economics tutor in the space provided on the answer booklet.

You are required to answer ALL questions.

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

Write your answers in the answer booklet provided. If you use more than one answer booklet, slot the additional booklets into the first booklet.

Please start each case study on a fresh page.

You are advised to spend several minutes reading through the questions and data before you begin writing your answers.

There are **7** printed pages including this cover page.

Answer all questions

Question 1: Singapore Electricity Market

Extract 1: The Retail Electricity Market

The Singapore electricity market consists of the wholesale electricity market and the retail electricity market. Power generation companies have to bid to sell electricity in the wholesale electricity market. Depending on electricity demand and supply, the price of electricity in the wholesale electricity market changes. Electricity retailers then buy electricity in bulk from the wholesale electricity market and compete to sell electricity to consumers.

Since 2001, the Energy Market Authority (EMA) has progressively opened up the retail electricity market to competition. This is to allow consumers to enjoy more choices and flexibility when buying electricity. Consumers will also benefit from competitive pricing and innovative offers while enjoying the same electricity supply.

The Open Electricity Market marks the final phase of market liberalization efforts. In November 2018, the Open Electricity Market was extended to all consumers in Singapore**,** giving them the option of buying electricity on a plan from any retailer that best meets their need**.**

Source: Adapted from openelectricitymarket.sg, accessed on 18 August 2023

Table 1: Market share of Electricity Retailers in Singapore between 2014 and 2021 (Unit: Percent (%))

	2014	2015	2016	2017	2018	2019	2020	2021
SP Services Ltd	33.0	30.8	30.1	27.7	24.6	20.4	15.8	15.5
Tuas Power Supply Pte Ltd	12.7	12.6	13.4	13.6	13.7	15.1	17.8	15.4
Keppel Electric Pte Ltd	13.4	11.5	10.4	13.8	14.4	14.1	15.0	15.0
Seraya Energy Pte Ltd	14.2	14.3	12.9	12.2	11.9	14.5	14.7	14.1
Senoko Energy Supply Pte Ltd	14.6	12.7	13.0	11.6	11.8	13.1	12.5	13.3
SembCorp Power Pte Ltd	8.3	12.2	9.8	10.9	11.9	12.8	12.8	13.1

Source: Energy Market Authority Singapore, accessed on 18 August 2023

Extract 2: Exits by Singapore electricity suppliers sparked by price volatility amid global energy crisis

The prospect of surging energy prices for the next few years amid volatile conditions are what spurred the departure of two retailers from Singapore's open electricity market (OEM), experts said. Of the 10 remaining retailers, at least two others are set for the exit door. Singapore's fourth-largest retailer iSwitch, as well as Ohm Energy, announced their departures from the market just days apart. Ohm Energy on Oct 15 informed customers it was exiting the market effective the same day due to "a volatile electricity market" rendering its prices unsustainable.

An e-mail to an existing Diamond Electric customer seen by The Straits Times cited "increasing costs of electricity" for the discontinuation of a similar plan.

Earlier this month, Trade and Industry Minister Gan Kim Yong cautioned that fuel prices have more than doubled over the past 18 months, and as an island state that imports almost all its energy, Singapore is inevitably affected by global turbulence. This year, Singapore is facing “a perfect storm” of soaring energy prices induced by shortages in fossil fuel production, triggered by under-investment in energy projects and exacerbated by the Ukraine war, as well as severe disruptions in renewable power around the world.

Business lecturer Tan Tsiat Siong from the Singapore University of Social Sciences said, "Retailers offering fixed price plans are promising to sell electricity at a cheap price - and sometimes in large volume - without sufficiently ensuring that they would be able to purchase this electricity at low prices." However, observers said independent retailers also had to compete in a saturated Singapore market - with 12 retailers for 1.4 million residential households - and for some of them, at the disadvantage of not having their own power generation assets.

Continued competition, for one, would still bring about benefits such as improved service quality, greater choice of customized product offerings and overall lower prices.

Mr Sharad Somani, KPMG Singapore partner and the head of infrastructure advisory, called on industry regulator Energy Market Authority to review the appropriate number of retailers for a competitive yet financially and commercially sustainable retail market space. As for retailers, he noted that in some other countries, they are known to go beyond electricity to provide anything from energy management solutions to broadband and heating. These additional offerings improve the stickiness of their customer base and increase revenue per customer.

Said Mr Somani: "Retailers will need to reinvent their business model and offer more value-added and diverse services to stay relevant, competitive and profitable in the long term."

Source: Adapted from The Straits Times, October 2021

Extract 3: Singapore boosts UN climate targets, confirms net zero by 2050

Singapore's power sector now produces about 40 per cent of the country's emissions, but the sector could realistically bring this down to net zero by 2050, said a new report published on Tuesday (March 22). The report comes after Singapore announced last month that it will aim for national emissions to reach net zero "by or around" that same mid-century timeline. About 45 per cent of national emissions comes from the industrial sector, while land transport here makes up about 14 per cent of the total emissions inventory. But the power sector is likely to contribute a larger percentage to Singapore's emissions in the years ahead, especially with the move towards digitalization and the electrification of vehicles here.

The Energy 2050 Committee report, commissioned by industry regulator Energy Market Authority (EMA), said achieving this target can be done in ways that will neither compromise Singapore's energy security nor affordability.

Importing more clean energy into Singapore through regional power grids, developing infrastructure suitable for clean-burning hydrogen to be used as a fuel and maximizing solar panel deployment are some of the strategies the report recommended, with inputs from energy experts.

Most of Singapore's energy is generated by natural gas, a fossil fuel, which means burning it produces planet-warming emissions into the atmosphere. In response to questions, A National Climate Change Secretariat spokesman noted Singapore’s emissions were still growing but said: “Unlike other cities or countries that have abundant access to alternative energy sources like wind, nuclear and hydropower, Singapore’s geography and small land area hamper our ability to harness alternative energy.”

EMA chairman, Mr Richard Lim, highlighted how Singapore lacks natural resources and the ability to access other forms of renewable energy other than solar will require a clear-minded weighing of the trade-offs across energy security, energy affordability, and environmental sustainability.

The report by the committee sets out strategies like keeping abreast of research into emerging low-carbon technologies, such as nuclear or carbon capture; buying international carbon credits to offset emissions from any fossil fuels that have to be burned locally; managing energy demand; and leveraging digital technologies.

Source: Adapted from The Straits Times, March 2022

Questions

(a) (i) Compare the market share of SP Services Ltd and Senoko Energy Supply Pte Ltd between 2014 and 2021. [2]

(ii) Identify the market structure of Singapore's retail electricity market and justify your answer. [2]

(b) With reference to extract 2 and the use of a diagram, explain why Singapore is facing "a perfect storm" of soaring energy prices. [5]

(c) Explain why some electricity retail firms such as iSwitch, took the decision to shut down in 2022. [3]

(d) Discuss whether the Open Electricity Market scheme is the best way to improve consumer welfare in the electricity retail market. [8]

(e) Discuss whether the strategies proposed in Extract 3 can reconcile the trade-offs of energy security, energy affordability, and environmental sustainability. [10]

[Total: 30]

Question 2: The US Economy Inflation Challenge

Extract 4: Why is inflation in the US so high?

Prices in the United States (US) jumped at an annual rate of 4.7% last year - faster than any other country in the Group of Seven (G7) advanced economies, according to the Organization for Economic Cooperation and Development (OECD). In the United Kingdom (UK), for example, inflation was just 2.5%.

Last month, inflation in the US hit 8.6%, one of the highest rates in the world.

Many of the forces driving inflation last year - such as supply disruptions from Covid and higher food prices after severe storms and drought hurt harvests - were not unique to the US.

The reason the US fared worse? In two words - high demand.

That was driven by the massive USD$5 trillion in spending, which the US government approved to shield households and businesses from the economic shock of the pandemic and has helped people to keep purchasing goods and services.

Goods like furniture, cars and electronics saw a surge of orders, as shoppers redirected money they might otherwise have spent on restaurants and travel.

And as unusually high demand collided with supply issues stemming from Covid, businesses raised prices.

A recent study by the Federal Reserve Bank of San Francisco concluded that pandemic relief packages probably contributed to 3 percentage points of the rise in inflation until the end of 2021 - a factor that goes a long way to explaining why US inflation outpaced the rest of the world.

Source: BBC, 14 June 2022

Table 2: Government expenditure (% of GDP) and annual average inflation rate (CPI) (%) in the US

Year	Government expenditure (% of GDP)	Average Inflation by Year (CPI) (%)
2019	35.73	1.8
2020	45.3	1.23
2021	42.36	4.7

Source: Macro Trends and International Monetary Fund, 5 August 2023

Extract 5: Soaring used car prices are pushing inflation higher, and there's not much the U.S. can do about it

The Biden administration has blamed much of the rising inflation rates in the country on the used car market. In December, prices consumers paid for goods and services rose 0.5% while used car prices rose 3.5%. The price of used cars is also having a historically high impact on overall headline inflation.

Economist Bernstein wrote that the primary supply-chain hiccup responsible for both used car inflation and its impact on the consumer price index data is a shortage of semiconductors used in the manufacturing of new cars.

The pandemic has changed consumers' demand for cars and forced hundreds of thousands to cancel or postpone travel plans in 2020. That one-time mass cancellation led to unprecedented demand for cars in the spring of 2021.

Source: CNBC, 13 Jan 2022

Extract 6: Fed raises interest rate by 0.75 percentage points as US seeks to rein in inflation

The Federal Reserve announced another sharp hike in interest rates on Wednesday as the central bank struggles to rein in runaway inflation, increasing the cost of everything from credit card debt and mortgages to company financing.

The Fed expects the rate rises to hit housing prices and the job market – raising unemployment from 3.7% to 4.4% next year – and to decrease economic growth.

Source: The Guardian, 21 Sep 2022

Extract 7: Would emerging economies get trampled by US interest rate hikes?

While the global economy is still recovering from the COVID-19 pandemic, central banks in advanced economies are hiking interest rates. This spells double trouble for emerging economies which have borrowed from the US because interest rate hikes will increase their debts. Furthermore, the interest rate hikes in the US is likely to attract short-term investors to invest in the more appealing US market than in the emerging economies, with lower interest rates. This would cause the exchange rate between emerging economies and the US to widen, resulting in debt owed by emerging economies which is denominated by USD to increase even more and become unmanageable.

However, not all is lost for emerging economies, because the rising interest rates in the US benefit foreign trade. The stronger dollar that will accompany the interest rate increase should boost demand for products from the emerging economies, increasing corporate profits for domestic and foreign companies alike.

Source: Adapted from East Asia Forum, 18 August 2022 and Investopedia, 29 July 2023

Table 3: GDP growth rates (%) of selected emerging economies

	2018	2019	2020	2021
Brazil	1.8	1.2	-3.9	4.6
China	6.7	6.0	2.2	8.1
India	6.5	3.7	-6.6	8.7
South Africa	1.5	0.3	-6.3	4.9

Table 4: Export of Goods and Services (% of GDP) of selected emerging economies

	2018	2019	2020	2021
Brazil	14.6	14.1	16.5	19.6
China	19.1	18.4	18.6	19.9
India	19.9	18.7	18.7	21.5
South Africa	27.6	27.3	27.6	31.2

Source of Tables 2 and 3: World Bank, 5 August 2023

Questions

(a) Compare the trend between government expenditure (% of GDP) and consumer prices in the US between 2019 and 2021. [2]

(b) Using Extract 4 and an aggregate demand and supply diagram, explain why inflation in the US is so high. [4]

(c) (i) Explain the likely value of cross elasticity of demand between new and used cars. [2]

(ii) Using a diagram and Extract 5, explain how the "shortage of semiconductors used in the manufacturing of new cars" and the pandemic has caused the price of **used cars** to change. [4]

(d) Discuss the impact of interest rate hike by the Federal Reserve on the emerging economies. [8]

(e) Discuss whether raising interest rates is the most effective way to address high inflation in the US. [10]

[Total: 30]

***** The End *****