



CATHOLIC JUNIOR COLLEGE

JC2 Preliminary Examination

Higher 1

ECONOMICS

8843/01

Paper 1

22 August 2024

No Additional Materials are required.

3 hours

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 an additional answer paper ask the invigilator for a continuation booklet.

Answer **all** questions.

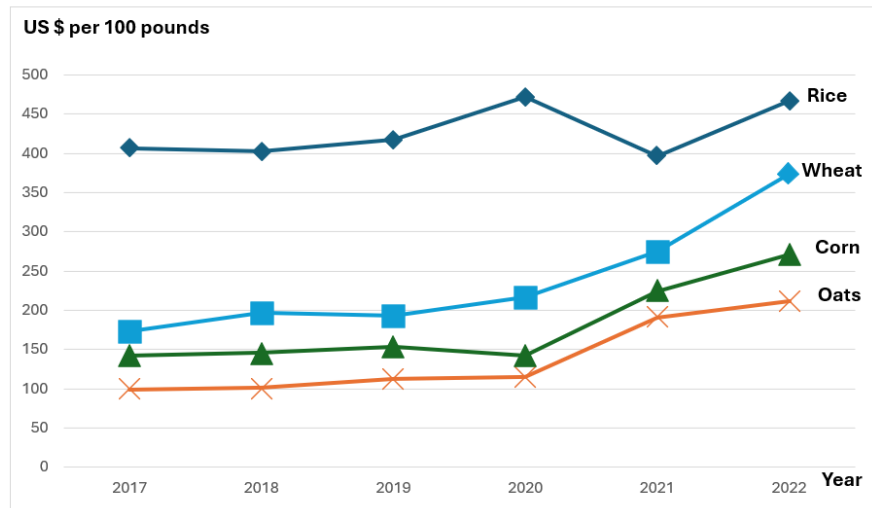
The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **10** printed pages.

[Turn over

Question 1: Food Security and Sustainability

Figure 1: Prices of selected primary products



Source: Macrotrend and Statista, 2024

Figure 2: Fertiliser Price Index



Source: The Financial Times, 2022

Extract 1: Sanctions on Russia and global food prices

The war in Ukraine has had a major impact on the global supply of agricultural fertilisers, potentially undermining food security around the world. Russia, together with Belarus, is one of the world's largest sources of mineral fertilisers such as nitrogen fertilisers. After the outbreak of war between Russia and Ukraine in 2022, many nations including the United States and the European Union (EU), have imposed sanctions on Russia's key exports such as fertiliser and oil. Russia's response to international sanctions has been to halt exports of more than 200 products. Crude oil is Russia's largest export, followed by refined petroleum such as petrol and diesel.

Russia is also one of the world's largest exporters of wheat. In terms of raw materials, Russia is the second largest exporter of cobalt, one of the key elements in making rechargeable batteries.

As such, global food prices have been on the rise since 2022. The prices of many foods, ranging from wheat and other grains to meat and oils, have shot up. That's been driven by a slew of factors, including the rising cost of fertiliser and energy in the past year as well as the Russia-Ukraine war. Around the globe, natural gas is used as a raw material as well as fuel for nitrogen fertiliser production.

In response to rising costs of fertiliser, India plans to increase the fertiliser subsidies to a record of more than 1.55 trillion rupees (\$20.64 billion) to avoid shortages amid a sharp increase in global prices of nitrogen fertiliser. The figure is almost double the amount budgeted for fertiliser subsidies relative to last year. To ensure food security, the government aimed to support farmers in maintaining high agricultural productivity. Fertilisers are crucial for achieving good crop yields. Furthermore, subsidizing fertilisers ensures farmers could afford the necessary nutrients for their crops without financial strain.

Source: World Economic Forum, 2022

Extract 2: Environmental impact of fertiliser usage and water monitoring system

Fertilisers have transformed the way the world produces food. Nitrogen and phosphorus are the two main types of fertilisers that farmers add to their fields. They have not only brought large benefits for food security, but they also bring environmental benefits through higher yields. But there can be a downside. When we overapply fertilisers – no matter whether they are natural ones like manure or synthetic fertilisers – excess nutrients are washed off and causes contamination of ground water, reducing longer-term soil health and productivity. Nutrient pollution in water bodies can affect habitats and food chains, leading to the decline in fish population.

In response, governments have been actively monitoring water quality so that action can be taken quickly. Water monitoring systems and artificial intelligence (AI) cameras constantly monitor the water quality and report insights directly to the user, providing a real-time overview of the ecological health of waterways. These systems use a combination of sensors and AI cameras to monitor key water quality parameters such as temperature, dissolved oxygen, and the presence of contaminants like heavy metals or pathogens. The data collected is made available to the users and government agencies about the ecological health and safety of the water.

Source: Our World In Data, 2021 and National Institutes of Health, 2023

Extract 3: Government responses

3.1 Germany – Restriction on the use of Nitrogen fertilisers

Germany's Fertiliser Ordinance places a limit on the amount of nitrogen and phosphate that can be used by farmers. The regulations are meant to prevent water pollution and promote sustainable farming practices. However, compliance costs vary widely among farms, with some facing high costs, especially those with intensive livestock farming on agricultural land. The 2017 revision of the Fertiliser Ordinance introduced stringent measures, including limited nutrient application and mandatory use of low-emission techniques for spreading manure. The measures have significant economic and ecological impacts, particularly on livestock and dairy farms, which have had to adapt to comply with the new rules. Farmers may need to select crops that require less nitrogen to stay within nutrient application limits, which affects overall productivity and profitability.

3.2 Singapore – Comcrop and Hydroponics

To achieve food security, the Singapore government supports urban farming initiatives. It has provided various incentives and subsidies such as the agriculture productivity fund to companies like ComCrop to promote local food production and innovation in agriculture. Hydroponics uses less fertiliser compared to traditional soil-based farming. The huge advantage of hydroponics used by Comcrop is that while soil-based farming loses about 90 per cent of its water and nutrient delivery, Comcrop recycles all of that and feeds the crops the exact amount of nutrients they need to grow. The combination of computer-controlled lighting and nutrients delivery can produce more consistent, higher-quality yields without harmful pesticides. Cutting-edge technologies like vertical farming, hydroponics, and aquaponics maximize yield per unit area and reduce resource inputs such as water and fertilizers.

Source: Reuters, 2021

Extract 4: A sustainable food system for Singapore

Singapore is vulnerable to supply shocks and disruptions as the small island-nation imports more than 90 per cent of their food. For greater food security and affordability, Singapore has set an ambitious “30 by 30” goal – to be able to produce 30 per cent of their nutritional needs by 2030. And the challenge is to achieve this with less than 1 per cent of land set aside for farming to ensure Singapore can have a reliable access to sufficient supply of affordable and nutritious food.

This requires Singapore to grow more with less, in a highly productive, climate-resilient, and resource-efficient way with the use of technology. Long-term strategic planning is critical in achieving their goal in food security and this will be achieved from both production and consumption aspect. Singapore is re-developing the Lim Chu Kang area, where many of their farms are currently located. The government's vision is to transform it into a vibrant, high-tech agri-food cluster to boost domestic food production and achieve food security in the long run.

Source: Singapore Food Authority, 2022

Questions

- (a) (i) Using Figure 1, compare the prices of the selected primary products from 2017 to 2022. [3]
- (ii) Using Figures 1 and 2, explain the relationship between the price of fertilizer and the price of wheat from 2017 to 2022. [2]
- (b) Explain **one** unintended consequence on the US producers due to its sanctions on Russia. [2]
- (c) Using a diagram, explain the likely effect of fertiliser subsidies given to farmers by the Indian government on consumer expenditure on rice. [5]
- (d) Identify and explain **two** main characteristics of public goods and comment on whether they are likely to be possessed by the water monitoring system. [6]
- (e) Discuss the factors the Singapore government is likely to consider when promoting the use of technology to achieve food security and affordability in Singapore. [8]
- (f) (i) Using evidence in Extract 2, explain how the use of fertilisers can lead to misallocation of resources. [4]
- (ii) Discuss whether the measures adopted by Germany or Singapore can better address the misallocation of resources in the market for fertilisers. [10]

[Total: 40]

Question 2: Macroeconomic performance and challenges in Asian economies

Table 1: Selected economic indicators for Sri Lanka, 2018 – 2022

Year	Nominal GDP per capita growth rate (%)	Inflation rate (%)
2018	2.43	4.30
2019	0.84	3.90
2020	-5.79	3.10
2021	4.98	8.00
2022	-8.41	47.50

Table 2: Living standards data for selected Asian countries, 2022

Human Development Index (in rank order)	Gini coefficient (before taxes and transfers)
1 Hong Kong	0.470
2 Singapore	0.433
3 South Korea	0.314
4 Japan	0.329
5 Turkey	0.419
6 Malaysia	0.412
7 Thailand	0.351
8 Vietnam	0.368
9 Sri Lanka	0.417
10 Timor Leste	0.287

Source: *World Bank, 2023*

Extract 5: Economic crisis in Sri Lanka

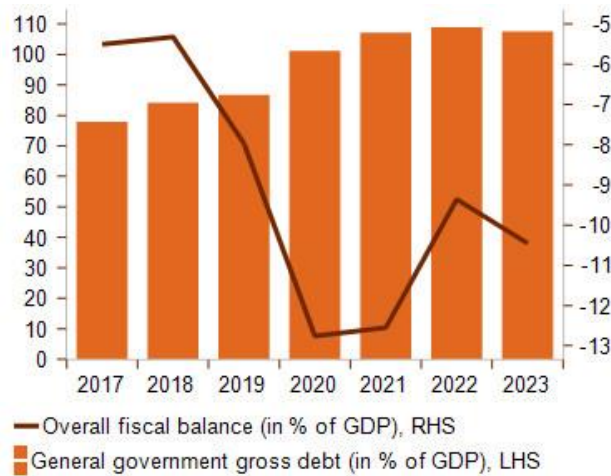
Years of economic mismanagement, weak governance, poor policy choices, and the impacts of external shocks such as the COVID-19 pandemic and the Russian invasion of Ukraine, plunged Sri Lanka into its worst-ever crisis in 2022. With the economy contracting by an estimated 8.4% and the rate of inflation rising to almost 50% in 2022, this has led to an exodus of workers leaving for employment abroad, aggravating labour and skilled worker availability in the country.

In May 2022, Sri Lanka failed to make an interest payment on its foreign debt for the first time in its history. This damaged its reputation with lenders, making it even harder to borrow money on the international markets. Sri Lanka owes about \$7 billion to China and around \$1 billion to India. Last month, both these countries agreed to restructure their loans, giving Sri Lanka more time to repay them. In addition, the International Monetary Fund (IMF) has agreed to lend Sri Lanka \$3 billion which is over and above \$600 million loan that the World Bank made last year.

To increase confidence in the Sri Lankan economy, the government agreed to cut expenditures, generate a budget surplus, pay off creditors and make the country a more attractive investment destination. Acting president Wickremesinghe implemented bold tax reforms to bolster its empty coffers. The country introduced income taxes for higher earners, ranging from 12.5% to more than 36%, while also increasing corporate tax from 24% to 30%. It also raised Value Added Tax, from the current 15% to 18%. In addition, the government says it will raise funds to repay its debts through supply side measures like privatization of state-owned enterprises like Sri Lankan Airlines, Sri Lanka Telecom, and by increasing infrastructure spending on highways, an airport and a port in the country, to attract investments.

Source: *United States International Trade Administration, 2023 and BBC News, 2023*

Figure 3: Selected indicators of fiscal health for Sri Lanka, 2017 – 2023



Source: International Monetary Fund, 2022

Extract 6: Why is Turkey in such a mess?

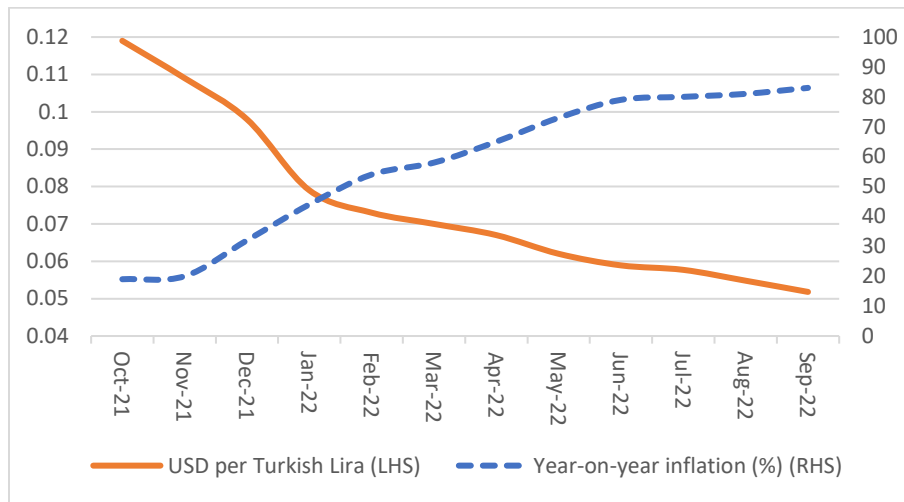
Turkey's economy is in tatters. Runaway inflation and a collapsing Turkish Lira have pushed millions of Turks to the brink of financial ruin and slammed factories, farmers, and retailers across the country. More than two-thirds of people in Turkey are struggling to pay for food and cover their rent, fuelling a surge in mental illness and debt. But it wasn't always this way. So, what went wrong?

Since 2013, the currency has steadily fallen in value, nose-diving over the last year. In September 2021, 1 US dollar was worth around 8 Turkish Lira, yet by December 2022, this has leapt to nearly 19.

From 2020 to 2021, economic growth experienced a rollercoaster ride. The slowest growth was in the third quarter of 2020, when the economy contracted 10.4%, and the fastest in 2021 when it grew 21.4%. Entering 2022, the economy started to cool on external headwinds. These included rising commodity prices triggered by the war in Ukraine and the tightening cycle by central banks, which started to dent growth. Global investment bank J.P. Morgan forecast Turkey's economy could contract 2% in the third quarter and zero growth in the final quarter of 2022.

Despite the runaway inflation in Turkey, the central bank has continued its low interest rate policy. In a statement in October, the bank argued lower interest rate cuts were important to preserve the growth momentum in industrial production and the positive trend in employment amid increasing uncertainties with global growth and further escalation of geopolitical risks. At the same time, other central banks are taking the opposite approach, to tame inflation.

Source: Euronews, 2022

Figure 4: Selected macroeconomic indicators, Turkey, 2021 – 2022

Source: *Turkish Central Bank, 2023*

Extract 7: Singapore moves to curb rising prices

With Singapore's growth set to slow in 2023 even as inflation remains high, economists are split on whether the Monetary Authority of Singapore (MAS) will press on with further monetary tightening moves to control inflation or begin to loosen its grip to not hurt growth. Government actions here to combat inflation will dampen its pace over the next year but the Republic cannot completely insulate itself from global rising prices, said Mr. Ravi Menon, managing director of the MAS.

Inflation is expected to get worse before it gets better. The MAS forecasts that energy costs globally will remain elevated due to the Russia-Ukraine war, as well as supply chain disruptions as countries recover from the impact of COVID-19. "Strengthening the exchange rate to try to offset the impact of global prices runs the risk of sharply curtailing growth and creating unemployment," Mr Menon said. When there is a pick-up in global food and energy prices of the magnitude seen today, it is not possible to completely insulate the domestic economy from these increases.

The Government helps to combat inflation by offering financial support to vulnerable groups who are unable to bear the sharp price increases. This includes the S\$1.5 billion support package unveiled last month which will give 1.5 million adults in Singapore S\$300 in a one-off cash payment and utilities credits to all households among other measures. "The Government has been careful that fiscal support does not add stimulus to the economy that could exacerbate inflationary pressures," said Mr Menon.

Despite the clouded outlook, MAS did not pivot from its stance of allowing the Singapore dollar to appreciate – due to the risks of potential price pressures from within and outside Singapore. While Singapore's core inflation has been trending lower and is forecast to continue doing so, consumers and businesses face another goods and services tax hike in January 2024, and upcoming increases in carbon prices, public transport fares and water prices.

Source: *Today Online, 2023*

Questions

- (a) Using Tables 1 and 2, compare Sri Lanka's living standards both over time and compared with the other Asian economies. Comment on the effectiveness of these indicators as a measure of living standards. [6]
- (b) Using a PPC diagram, explain the impact of Sri Lankan workers "leaving for employment abroad" (Extract 5) on its economic growth. [3]
- (c) With reference to Figure 4, explain how the changes in inflation in Turkey in 2022 are likely to have affected the value of the Turkish Lira. [3]
- (d) (i) Using examples from Extract 7 and an AD-AS diagram, explain **one** internal cause and **one** external cause of inflation in Singapore. [5]
- (ii) Explain how the strengthening of the Singapore dollar to combat inflation may lead to undesirable short-term consequences on employment and living standards. [5]
- (e) Extract 6 states that despite the runaway inflation in Turkey, the central bank has continued its low interest rate policy to achieve growth. At the same time, other central banks are taking a contractionary approach to taming inflation.
- Discuss whether achieving economic growth or addressing inflation should be the main priority of governments. [8]
- (f) Discuss whether 'bold tax reforms' or 'supply side measures' (Extract 5) would be best to pursue sustained economic growth whilst maintaining fiscal sustainability in Sri Lanka. [10]

[Total: 40]

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