**Principles of Economics (2) (Spring Semester 2022)**
**Final Exam (B)**
**(2022/6/19)**

**I. True or False**. Determine if the following statements is true or false and explain why. (4 points *5=20 points)

1. The increase of money supply leads to the decrease of real interest rate in the short term; In the long run, it does not change the real interest rate.

2. In the short term, expansionary monetary policy will lead to the depreciation of the exchange rate of the domestic currency, while the expansionary fiscal policy will lead to the appreciation of the exchange rate of the domestic currency. (Hint: Consider interest rate effect, exchange rate effect and crowding out effect.)

3. British economist A.W. Phillips found that in the past 100 years in the UK, the inflation rate and the unemployment rate showed a negative correlation. This is an irreconcilable contradiction with the long-term Phillips curve's belief that unemployment and the inflation rate are not correlated in the long-term. (Hint: In the years when Phillips discovered this relationship, fluctuations of the inflation rate were often unpredictable due to their spontaneity, and on average were close to zero.)

4. It is the wrong policy to stimulate consumption when the economy is in recession, because the increase in consumption leads to the reduction of savings and investment, which is not good for economic growth.

5. The main argument against policy makers to stablize economy is that many policies have no effects in the long term.

**II. Multiple Choice.** There is only one correct answer to each question. (3 points *13 =39 points)

1. If the Federal Reserve reduces the rate of money growth and maintains it at the new lower rate, eventually the short-run Phillips curve will (______) and the long-run Phillips curve will (______).
A. shift downward; shift leftward.
B. shift downward; not shift.
C. shift downward; shift rightward.
D. shift upward; not shift.

2. Advocates of the theory of rational expectations believe that:
A. the sacrifice ratio can be much smaller if policymakers make a credible commitment to low inflation.
B. if disinflation catches people by surprise, it will have minimal impact on unemployment.
C. wage and price setters never expect the central bank to follow through on its announcements.
D. expected inflation depends only on the rates of inflation that people have recently observed.

3. Which of the following is NOT an argument for a zero rate of inflation?
A. It eliminates distortions from a non-indexed tax code.
B. It encourages people to hold a greater quantity of money.
C. It reduces the menu costs that firms have to incur.
D. It stops real wages from falling if nominal wages cannot be cut.

4. The Boeing Aircraft Company of the United States sold the aircraft to a Japanese airline, and the Japanese airline paid for the aircraft in dollars held by the company. Then the impact of this transaction on US net exports and net capital outflows to Japan is:
A. Because the Japanese bought the aircraft in dollars, it did not affect the net capital outflow from the United States to Japan. But US net exports to Japan increased.
B. Because the Japanese bought the aircraft in dollars, it did not affect the net capital outflow from the United States to Japan. Then the net exports of the United States to Japan did not change.
C. It increased US net exports to Japan, increased Japanese Yen assets held by Americans, thus US net capital outflows to Japan increased.
D. It increased the net exports of the United States to Japan and reduced the dollar assets held by the Japanese, thus US net capital outflows to Japan increased.

5. The dollar-yen exchange rate falls from 100 to 80 yen per dollar. At the same time, the price level in the United States rises from 180 to 200, and the price level in Japan remains the same. As a result:
A. American goods have become more expensive relative to Japanese goods, pushing the U.S. trade balance toward deficit
B. American goods have become more expensive relative to Japanese goods, pushing the U.S. trade balance toward surplus.
C. American goods have become less expensive relative to Japanese goods, pushing the U.S. trade balance toward deficit.
D. American goods have become less expensive relative to Japanese goods, pushing the U.S. trade balance toward surplus.

6. The nation of Elbonia has long banned the export of its highly prized puka shells. A new elected president, however, removes the export ban. This change in policy causes the nation's currency to (______), making the goods Elbonia imports (______) expensive.
A. depreciate; less
B. depreciate; more
C. appreciate; less
D. appreciate; more

7. Among the following events that occur in a certain market, the least likely to bring macroeconomic fluctuations is:
A. Large reduction in grain production due to weather
B. People suddenly preferring apples to pears

C. Bankruptcy of a large bank

D. OPEC decide to improve oil production

8. According to the sticky price theory, given the expected price level, when the actual price level rises: the firms with higher menu cost will (      ) their output, while the firms with lower menu cost will (      ) their output, so the total output of the economy will (      ).

A. increase; decrease; increase

B. decrease; increase; decrease

C. not change; increase; increase

D. increase; not change; increase

9. One reason the short-run aggregate-supply curve slopes upward is that a higher price level:

A. raises nominal wages while real are sticky.

B. reduces nominal wages while real wages are sticky.

C. raises real wages while nominal wages are sticky.

D. reduces real wages while nominal wages are sticky.

10. An increase in the aggregate demand for goods and services has a larger impact on output (      ) and a larger impact on the price level (      ).

A. in the short run; in the long run

B. in the long run; in the short run

C. in the short run; also in the short run

D. in the long run; also in the long run

11. According to the theory of liquidity preference, an economy's interest rate adjusts:

A. to balance the supply and demand for loanable funds.

B. to balance the supply and demand for money.

C. one-for-one to changes in expected inflation.

D. to equal the interest rate prevailing in world financial markets.

12. When the economy is in a long-term equilibrium, the implementation of the tightening fiscal policy will lead to:

A. The unemployment rate and inflation rate have been falling.

B. The unemployment rate and inflation rate have been rising.

C. The unemployment rate rises and then falls, and the inflation rate has been falling.

D. The unemployment rate has been falling, and the inflation rate falls and then rises.

13. When the COVID-19 pandemic suddenly struck, some athletes ("postponement") expected the 2020 Tokyo Olympics to be postponed, while others ("on schedule") expected the Tokyo Olympics to be held on schedule. Assuming that the Tokyo Olympics were postponed, which athletes would achieve relatively better results? Assuming that the Tokyo Olympics are indeed held on schedule, which athletes will achieve relatively better results?

A. postponement; on schedule

B. postponement; postponement

C. on schedule; on schedule
D. on schedule; postponement

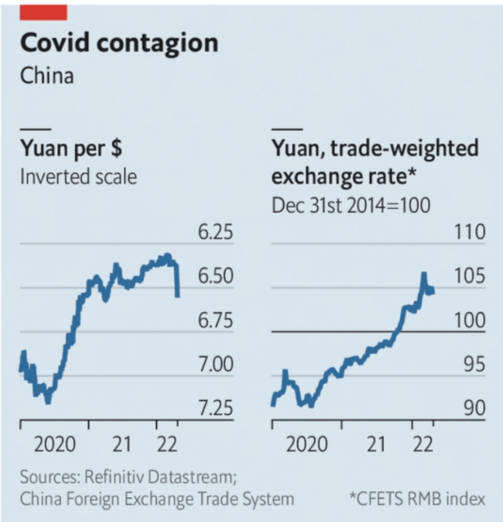
**III. Question and Answer (3 questions, 41 points)**
**1. Fluctuation of the yuan exchange rate under the COVID-19 (11 points)**
Read the following article and answer the questions:

*Fear of floundering: China should worry less about its currency and more about its economy*
*The Economist 2022-05-06 (Note: This article is for examination only and does not represent the views of this course.)*

*IT IS EASY to forget that the world's second-biggest economy is still an emerging market. China's global clout, its technological prowess in certain fields, and even its low bond yields all distinguish it from the typical member of its asset class. But in at least one respect China resembles a classic emerging market: it retains a palpable fear of floating its currency. Instead China keeps a close eye on the yuan's value against the dollar and a basket of its trading partners' currencies, limiting any sharp movements.*

*For most of the past year, it worried that the yuan would float too high. China's largely successful efforts to stamp out the early variants of covid-19 kept its factories open and its borders closed. That allowed its exports to boom, putting upward pressure on the yuan, even as outbound tourism and other services imports suffered, removing a source of downward pressure. The yuan rose sharply against the basket of trading partners' currencies and gently against the dollar, which was itself strong.*

*Now China's fight against the pandemic is instead contributing to the currency's sudden weakness. Lockdowns stringent enough to hamper manufacturing have been imposed on Shanghai and other cities accounting for over 9% of GDP, according to Gavekal Dragonomics, a consultancy. China's economic figures for April will "certainly be disastrous", it says. The war in Ukraine has contributed to outflows from China's bond and equity markets, as foreigners reassess the risks of investing in countries at geopolitical loggerheads with the West. And as America has lost its fear of the virus, its economy has overheated, forcing the Federal Reserve to raise interest rates. In April the nominal yield on ten-year Treasuries briefly exceeded that on Chinese bonds for the first time since 2010. (Real yields remain much higher in China, where consumer-price inflation is only 1.5%, compared with 8.5% in America's larger, more "mature" economy.)*



The Economist

*A weaker yuan is both a reflection of these challenges and one way to cope with them. It will in particular help to shore up China's exports. But the central bank is not prepared to let the currency be dominated by market forces. It bears the scars of past falls in the yuan, which took on a momentum of their own. On April 25th it said it would cut the amount of reserves banks are required to hold from 9% of their foreign- exchange deposits to 8%. That will release some dollars to the market, alleviating pressure on the yuan. The move also signals the central bank's displeasure at the speed of its currency's descent.*

*China's currency worries may deter the central bank from cutting interest rates to revive growth. That will leave its economy more dependent than ever on fiscal stimulus. At a meeting of the powerful Central Committee for Financial and Economic Affairs on April 26th, Xi Jinping, China's president, called for more investment in infrastructure, from rural roads and urban drains to smart electricity grids and artificial-intelligence platforms. Citigroup, a bank, forecasts that infrastructure spending could grow by 8% this year. But according to Natixis, another bank, China will not meet its (increasingly forlorn) growth target of around 5.5% unless infrastructure investment grows by almost 18%. Even a conventional emerging market with vast infrastructure needs would struggle to boost spending by that much. China's fear of floating has inhibited its monetary response to its economic woes. And that has raised fears of its floundering.*

(1) "China's largely successful efforts to stamp out the early variants of covid-19 kept its factories open and its borders closed……even as outbound tourism and other services imports suffered……" Draw the three-panel diagram of the open economy, analyze how the events described here affect the diagram, and explain why the success of China's early anti-pandemic efforts led to the appreciation of the yuan. (3 points)

(2) With the passage of time, the article mentioned three events affecting China's macro-economy: (1) the lockdowns of Shanghai and other cities; (2) geopolitical risks "intensified the capital outflow from China's bond and equity markets"; (3) the Federal Reserve raised interest rates. Explain the effect of these three events on China's open economy one by one, and

draw three-panel diagram of the open economy to show this effect. Are these events sufficient to explain the "sudden weakness of the yuan"? How will these events change China's net exports in equilibrium? How will interest rates change? How will domestic investment and national savings change? Why does the article say that "a weaker yuan is both a reflection of these challenges and one way to cope with them"? (4 points)

(3) "The central bank said it would cut the amount of reserves banks are required to hold from 9% of their foreign- exchange deposits to 8%. That will release some dollars to the market, alleviating pressure on the yuan." Show the effect of this policy in the above diagram. Will the yuan exchange rate be higher or lower than that without the policy? Will net exports be less or more? Will interest rates be higher or lower? (2 points)

(4) "China’s currency worries may deter the central bank from cutting interest rates to revive growth. ……China’s fear of floating has inhibited its monetary response to its economic woes. " How will the interest rate cut by the Central Bank of China affect the yuan exchange rate? What is the channel for such a impact? What will happen to net exports? Explain it without a diagram What adverse consequences will the failure to cut interest rates have on China's macro economy? (Note: You need to replace the first one of the three-panel diagram. You can try it after the exam.) (2 points)

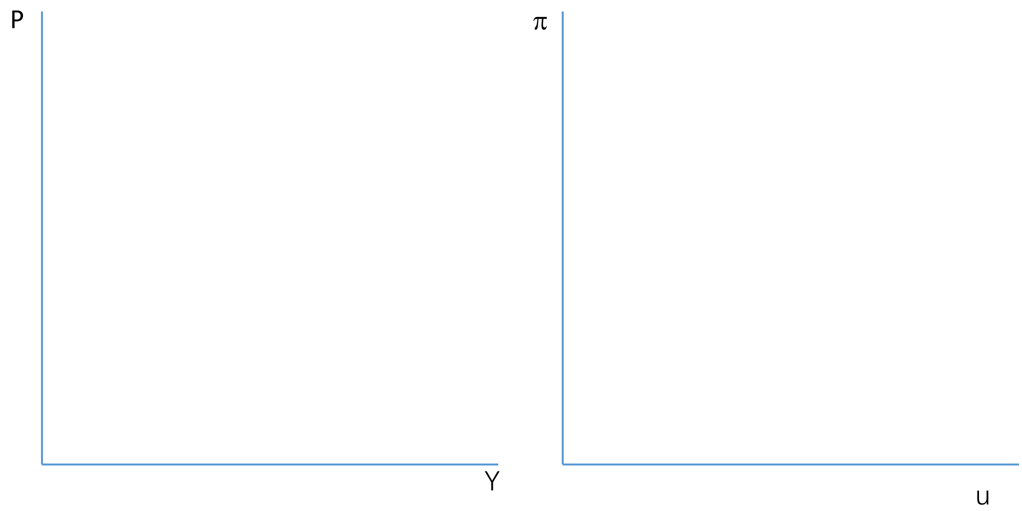
**2. COVID-19 Pandemic and Macroeconomics (16 points)**

Since 2020, China's economy continues to suffer from the impact of COVID-19. The following are the main macroeconomic data released by the National Bureau of Statistics:

| year | Annual growth rate of GDP（%） | Annual growth rate of CPI（%） | Annual growth rate of PPI（%） | the surveyed urban unemployment rate（%） |
|---|---|---|---|---|
| 2019 (pre-COVID-19) | 6.1 | 2.9 | -0.3 | 5.2 |
| 2020 | 1.7 | 2.5 | -1.8 | 5.2 |
| 2021 | 8.0 | 0.9 | 8.1 | 5.1 |
| 2022 Q1 | 4.8 | 1.1 | 8.7 | 5.5 |

Assume that the economy is in long-term equilibrium in 2019 (pre-COVID-19).

(1) Draw the graph of aggregate supply and demand of the economy in the left figure below, including short-term and long-term aggregate supply curves and aggregate demand curve. Draw the Economy's Phillips curve on the right, both the short and long term one. In both charts, Sign the letter A to represent the long-term and short-term equilibrium of the economy in 2019. (2 points)




COVID-19 has adversely affected both aggregate demand and aggregate supply. The former includes reduced consumption as people go out less and reduced investment as companies face increased uncertainty about the future, while the latter includes "supply chain disruption" caused by factory shutdown and traffic disruption.

Consider the macro economy in 2020 (the first year of COVID-19).

(2) Judging from China's macroeconomic statistics provided in the table above, in the early stage of COVID-19 in 2020, does the adverse impact mainly come from aggregate demand or aggregate supply shock? State your judgment. (Hint: THE PRODUCER price index PPI mostly reflects changes in the cost of production, while the CONSUMER price index CPI mainly reflects changes in the price consumers pay.) (1 point)

(3) Consider the main aspect of the COVID-19 impact obtained from the above analysis, and ignore other aspects. How does COVID-19 affect aggregate supply and demand graphs in the short term in 2020 (the early stage of the pandemic)? How does it affect the Phillips curve? How does theory predict the output of the economy to change? How do prices and inflation change? How does the unemployment rate change? Sign point B to represent the equilibrium point of the economy in the short run in the graph. (2 points)

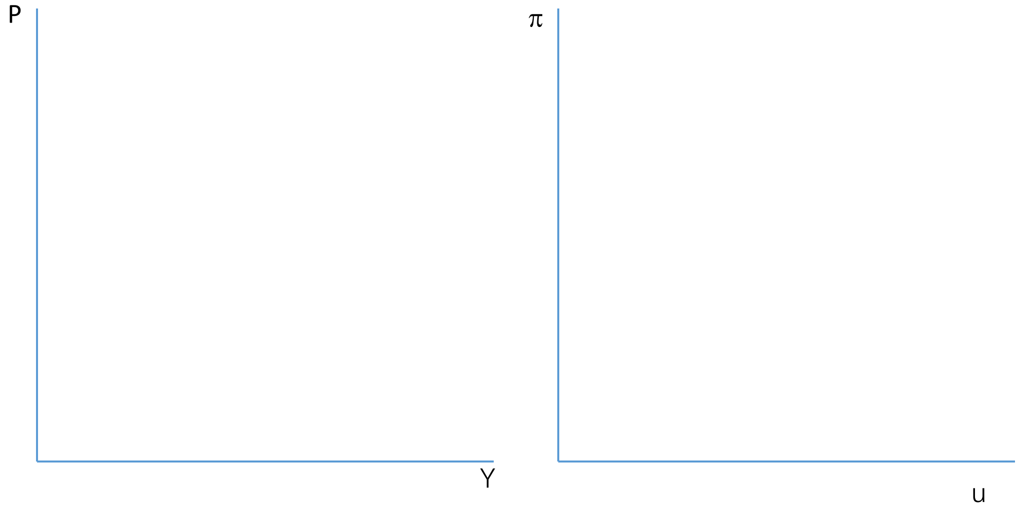
(4) From the macro-economic data given above, is the macro-data in the early stage of COVID-19 (2020) largely consistent with the theoretical prediction in part (3)? Explain your answer. (Note: The "natural output" of the Chinese economy needs to maintain a reasonable growth rate of GDP, and the central bank would normally maintain positive monetary growth.) (1 point)

(5) Continue with part (3). In the longer term, if the "major impact" of COVID-19 persists, what further movements in output, price levels and inflation do you expect? What will happen to the unemployment rate further? Sign point C to represent in the graph. How will people's expected prices and expected inflation adjust? Do you expect the output of the economy to adjust between different industries? (2 points)

In 2021-22, the economy faces a new situation with new changes in the epidemic, such as the impact of virus mutation.

(6) Judging from China's macroeconomic data provided in the table above, does the adverse impact of COVID-19 in 2021-22 mainly come from aggregate demand or aggregate supply shock? Or is it both? State your judgment. (Note that while GDP growth in 2021 is high, it is based on lower GDP growth in 2020. Considering GDP growth averaged 4.4% over the two-year period, this is still low.) (1 point)

(7) Taking into account all the shocks described in part (6), how does COVID-19 affect the aggregate supply and demand graph in the short term relative to the long-term equilibrium in 2019? How does it affect the Phillips curve? How does theory predict the output of the economy to change? How do prices and inflation change? How does the unemployment rate change? REPLOT the graph, still using point A to represent the long-term equilibrium in 2019 and point B to represent the short-term equilibrium point of the economy under the new shock. Evaluate the consistency between actual data and theoretical prediction. (Hint: Just consider one possibility you may think of.) (3 points)




(8) Continue with part (7). In the long run, if all the above effects of COVID-19 persist, what do you expect output to be, the price level and inflation rate to be? What happens to the unemployment rate? Sign point C’ to represent in the graph. How will people's expected prices and expected inflation adjust? How do you expect the output of the economy to change differently compared to part (5)? (2 points)

(9) Will the government's fiscal and monetary policies be easier to deal with macroeconomic shocks in 2020 or in 2021-22? Explain your answer. What other policies do you think can be considered? (2 points)

**3. Aggregate Demand (14 points)**

Consider an economy described by the following equations:

$Y=C+I+G$

$C=100+0.75(Y-T)$

$I=500-50r$

$G=125$

$T=100$

where Y is GDP, C is consumption, I is investment, G is government purchases, T is taxes, and r is the interest rate. If the economy were at full employment (that is, at its natural rate), GDP would be 2,000. (Note: Throughout the whole problem, we do not consider aggregate supply, GDP is equivalent to aggregate demand.)

a. What is the marginal propensity to consume in this economy? (1 point)
b. Suppose the central bank's policy is to adjust the money supply to maintain the interest rate at 4 percent, so r=4. Solve for GDP. How does it compare to the full employment level? (2 points)
c. Other things being equal, what is the level of interest rate (r) which can result in a full employment output? (2 points)
d. Other things being equal (in particular, r=4), what is the level of government purchases (G) would restore full employment? (2 points)
e. Suppose firms suddenly become pessimistic and decrease their investment by 100 (regardless of interest rate). Other things be equal (in particular, r=4), solve for the GDP. Relate the change in GDP due to change in investment to the marginal propensity to consume. (2 points)
f. Now suppose that Tax is not a fixed amount but proportion to GDP: $T=(1/18)Y$. Other things be equal (in particular, r=4), solve for the GDP. (2 points)
g. Under such a taxation system, consider a sudden decrease in investment (I) by an amount of 100 as in part (e). Other things be equal (in particular, r=4), solve for the GDP. Is the change in GDP larger or smaller than in part (e)? What we call such a taxation system in macroeconomics? (3 points)