

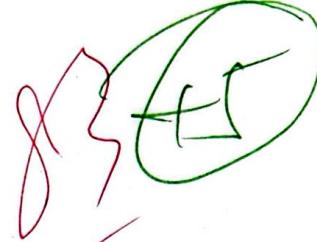
Checked by Yang Lu

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
ECON 3123 Final Exam (Answer Book)

Date: Dec 10, 2025

Time allowed: 120 minutes

Not to be taken away.



Instructions:

- Answer ALL the questions. Write your answers on the answer book. Anything written on the question book will NOT be graded.
- Write your answer to all the questions within the provided area. Anything outside the provided area will NOT be graded.
- Make sure that all your handwritings are legible. Anything that cannot be understood by the grader will not be graded.
- Please submit BOTH the question book and the answer book after the exam.

DO NOT OPEN UNTIL INSTRUCTED!

Name: Tsang Tsz Hong

Student ID: 21167502

Seat Number: 31

You MUST sign the following HKUST Honor Code.

Otherwise, your exam will NOT be graded.

The HKUST Academic Honor Code

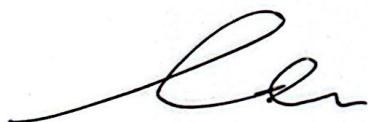
Honesty and integrity are central to
the academic work of HKUST.

Students of the University must observe and uphold
the highest standards of
academic integrity and honesty in all the work
they do throughout their program of study.

◆
As members of the University community,
students have the responsibility to help maintain
the academic reputation of HKUST
in its academic endeavors.

◆
Sanctions will be imposed on students,
if they are found to have violated the regulations
governing academic integrity and honesty.

Your Signature:



Multiple Choice Questions (20 points)

1	2	3	4	5
C	X	D	C	C

16

Question 6 (15 points)

(1) (5 points)

$$\pi_t^e = 2.4\% + 0.4\pi_{t-1} \quad \text{--- (1)}$$

$$\pi_t = 5\% + 0.4\pi_{t-1} - 0.5u_t \quad \text{--- (2)}$$

$$(2) - (1) :$$

$$\begin{aligned} \pi_t - \pi_t^e &= -0.5u_t + 0.826 \\ &= -0.5(u_t - 0.052) \end{aligned}$$

Comparing with the formula

$$\pi_t - \pi_t^e = -\alpha(u_t - u_n)$$

$$u_n = 0.052$$

$$\text{natural rate of unemployment} = 0.052$$

Question 6 (15 points, Continued)

(2) (5 points)

From the Philips curve,

$$\pi_t = 5\% + 0.4\pi_{t-1} - 2.5u_t$$

Now in period t , the inflation rate π_t is 5% ,

Unemployment rate = natural rate = 0.052 by $1^{(1)}$ part

$$\pi_{t+1} = 0.05 + 0.4\pi_t - 2.5u_t$$

$$\begin{aligned}\pi_{t+1} &= 0.05 + 0.4(0.05) - 2.5(0.052) \\ &= 0.044\end{aligned}$$

Inflation in period $t+1 = 0.044$

(3) (5 points)

$$\pi_{t+1} = 0.05 + 0.4\pi_t - 2.5u_{t+1}$$

When $\pi_t = 0.05$, $\pi_{t+1} = 0.04$

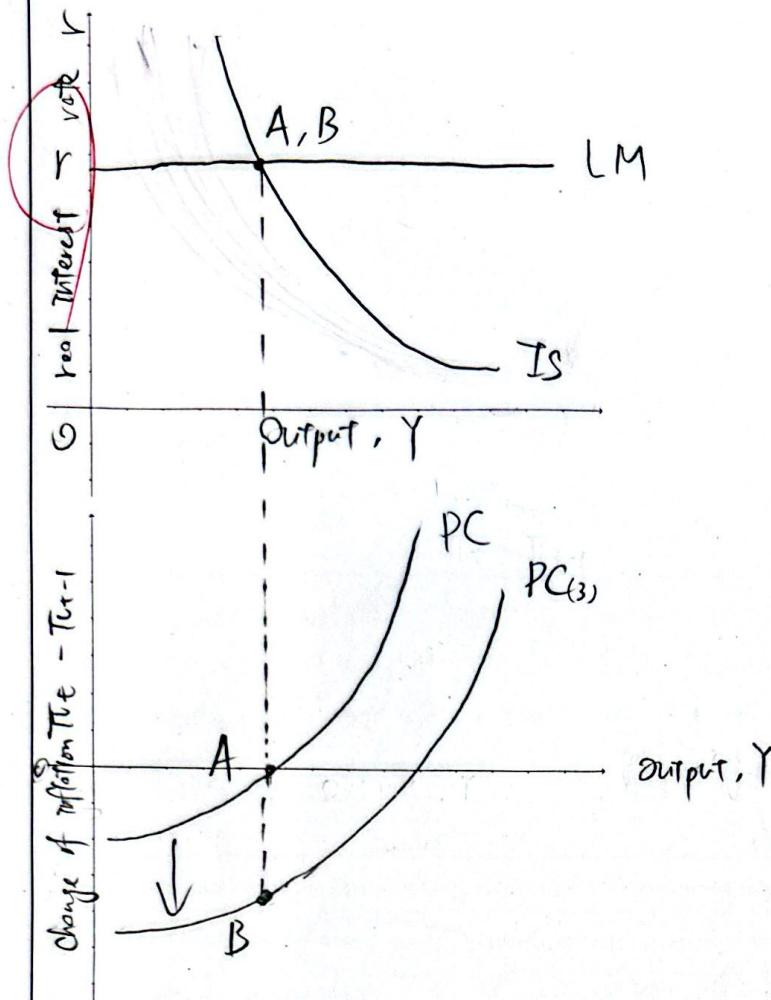
$$0.04 = 0.05 + 0.4(0.05) - 2.5u_{t+1}$$

$$u_{t+1} = 0.06$$

The unemployment rate in period $t+1 = 0.06$

Question 7 (35 points)

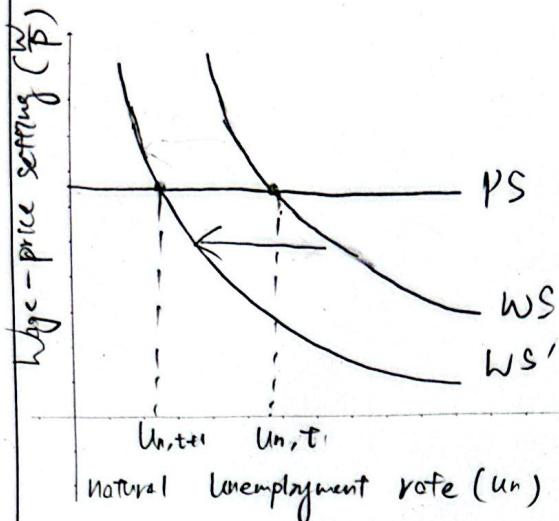
(1) (5 points) and (3) (10 points)



Effects: According to (2) when there is an AI shock, the unemployment natural rate decreases, bringing up the unemployment gap. Since $\pi_{t+1} - \pi_t = -\alpha(\bar{u}_t - \bar{u}_n)$, Change of inflation will decrease (become negative), shifting down the PC Curve. While the equilibrium point of IS-LM curve remains unchanged, the equilibrium point of PC curve is lower than original.

Question 7 (35 points, Continued)

(2) (10 points)



Effects: When workers' bargaining power is weaken, τ decreases
 WS-curve is shifted to the left (downward)
 The equilibrium point of natural unemployment rate will decrease.
 $u_{n,t+1} < u_{n,t}$

(4) (10 points) Circle the correct one and write one-sentence explanation.

Inflation (increases decreases remains unchanged / is uncertain).

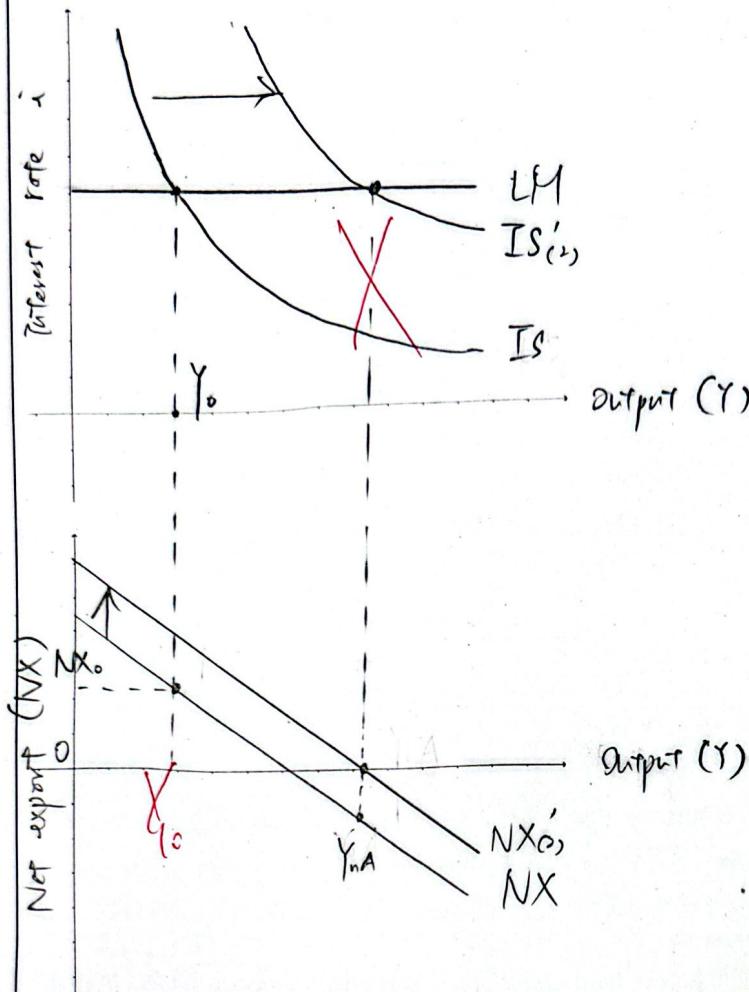
Explanation: According to (3), Change of Inflation $\pi_{t+2} - \pi_{t+1}$ becomes negative. Therefore for period $t+2$, $\pi_{t+2} < \pi_{t+1}$, inflation decreases.

Output (increases decreases remains unchanged / is uncertain).

Explanation: $\pi_{t+2} - \pi_{t+1} = \frac{1}{A} (Y_{t+2} - Y_{t+1})$, when inflation decreases, output drops while A and L remain constant, lower than potential.

Question 8 (30 points)

(1) (5 points) and (2) (10 points)

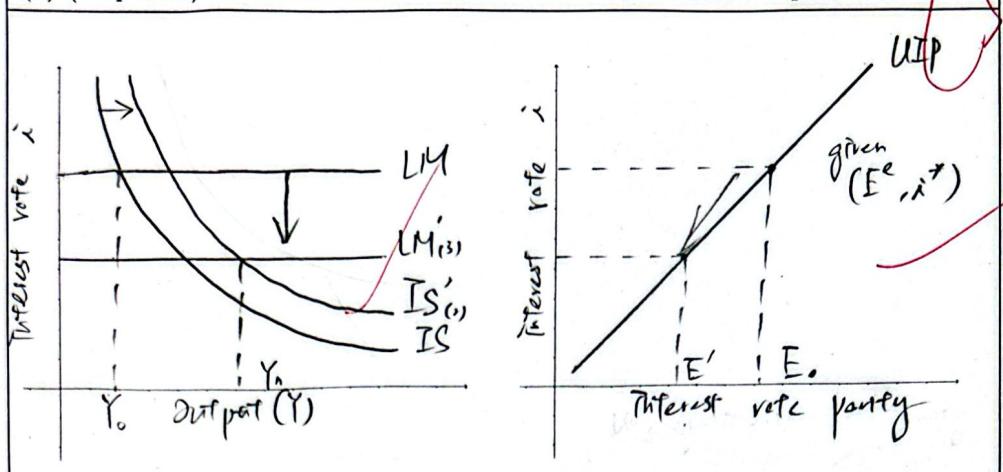


Policy mix: Increasing government spending ($G \uparrow$) and depreciating exchange rate ($E \downarrow$)

Explanation: Increasing G can shift IS-curve to the right, which increases output to natural level Y_n . Now decrease the exchange rate E such that real exchange rate e is also lowered. Trade deficit could be avoided based on ^{that} Marshall-Lerner condition holds which e 's decrease can increase net exports.

Question 8 (30 points, Continued)

(3) (15 points) Circle the correct one and write one-sentence explanation. 15



Monetary policy:

Expansionary, decreasing interest rate is

Consumption increases / decreases / remains unchanged / is uncertain).

Explanation: Output is increased after both expansionary fiscal and monetary policy. Consumption is then increased due to increased output

Investment increases / decreases / remains unchanged / is uncertain).

Explanation: For $I(Y, i)$, since output increases and interest rate decreases, investment is further increased

Net export increases / decreases / remains unchanged / is uncertain).

Explanation: According to (2), originally the economy is at trade surplus but now it is in trade balance after the fiscal and monetary policies.

***** END OF THE EXAM *****