Checked by Yang Li.

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.

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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 handweritngs 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: Zuo Yungi Joshua

Student ID: 21166493

Seat Number: 21

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	A	D	C	C

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Question 6 (15 points)

(1) (5 points)

To find natural rate of unemployment u_n. we require $\pi_t = \pi_t^e$.
so $\pi_t = \pi_t^e$ as well

We have $2.4\% + 0.4\pi_{t-1} = 5\% + 0.4\pi_{t-1} - 0.5u_n$

$$0.5u_n = 5\% - 2.4\%$$

$$u_n = 5.2\%$$

The natural rate of unemployment is 5.2%

Question 6 (15 points, Continued)

(2) (5 points)

As u_t is kept fixed at u_n for two years, we can solve for π_{t+1} using $\pi_{t+1} = 5\% + 0.4\pi_t - 0.5u_{t+1}$, where $u_{t+1} = u_n$

Plug in the numbers. $\pi_{t+1} = 5\% + 0.4(5\%) - 0.5(5.2\%)$

$$\pi_{t+1} = 4.4\%$$

Inflation in period $t+1$ is 4.4%

(3) (5 points)

The relation $\pi_{t+1} = 5\% + 0.4\pi_t - 0.5u_{t+1}$ still holds.

Put $\pi_{t+1} = 4\%$, $\pi_t = 5\%$. we have

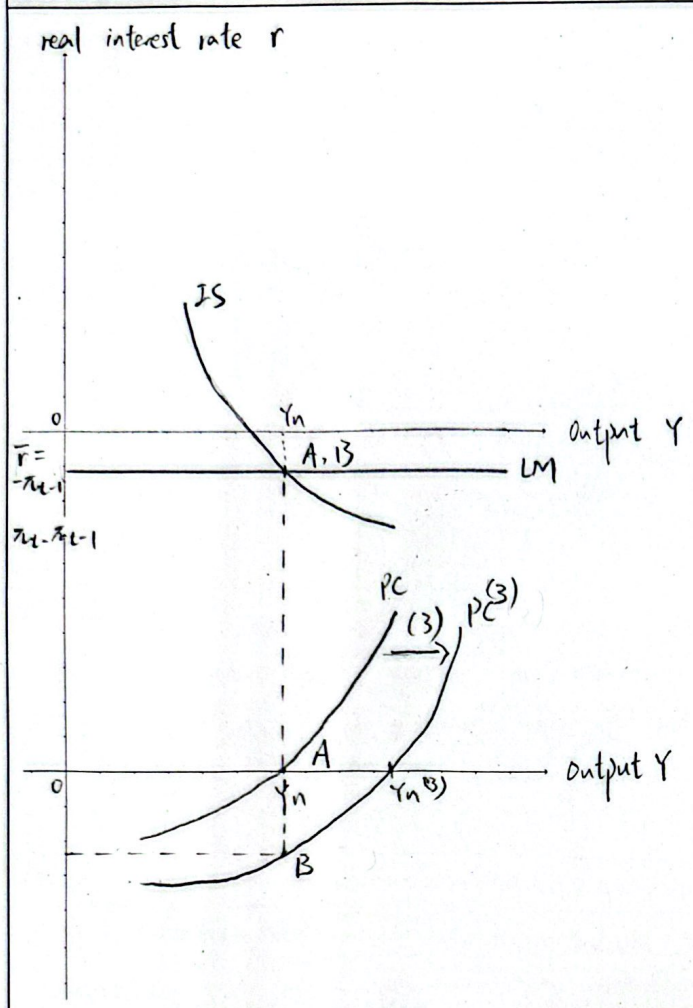
$$4\% = 5\% + 0.4(5\%) - 0.5u_{t+1}$$

$$u_{t+1} = 6\%$$

The unemployment rate at period $t+1$ is 6%

Question 7 (35 points)

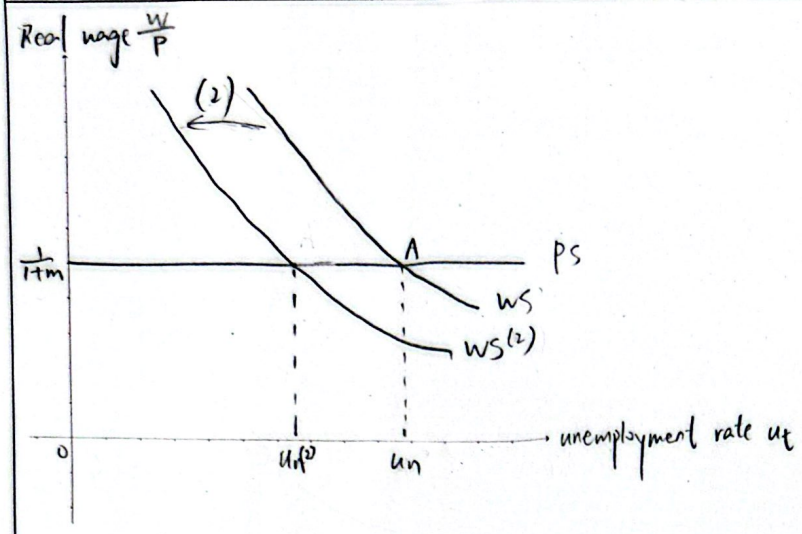
(1) (5 points) and (3) (10 points)



Effects: As $u_n \downarrow$, and $Y_n = AN_n = A \cdot L(1-u_n)$, $Y_n \uparrow$, the PC curve shifts to the right. The gap between Y and Y_n with $Y < Y_n$ causes an accelerating deflationary pressure with $\pi_t < \pi_t^e = \pi_{t-1}$. The IS and LM curve do not shift due to this shock.

Question 7 (35 points, Continued)

(2) (10 points)



Effects: The shock implies variable $z\downarrow$, this does not affect the PS curve but shifts WS curve to the right, $z\downarrow$ implies $u_n\downarrow$. the natural rate of unemployment decreases

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

Inflation (increases / ~~decreases~~ / remains unchanged / is uncertain).

Explanation:

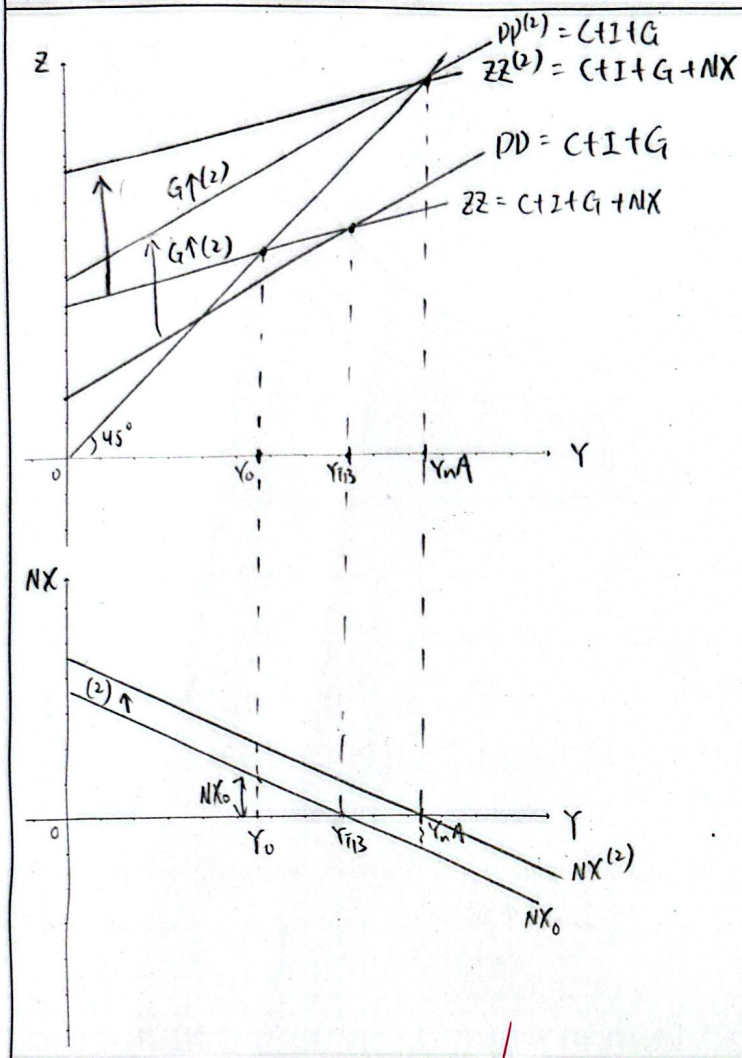
Rate of change of inflation $\Delta\pi$ is negative due to the negative output gap, inflation must decrease.

Output (increases / ~~decreases~~ / ~~remains~~ unchanged / is uncertain).

Explanation: Real interest rate $r\uparrow$ due to inflation $\downarrow$ shifting IM curve up (with $i=0$ due to ZLB), reducing output Y

Question 8 (30 points)

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



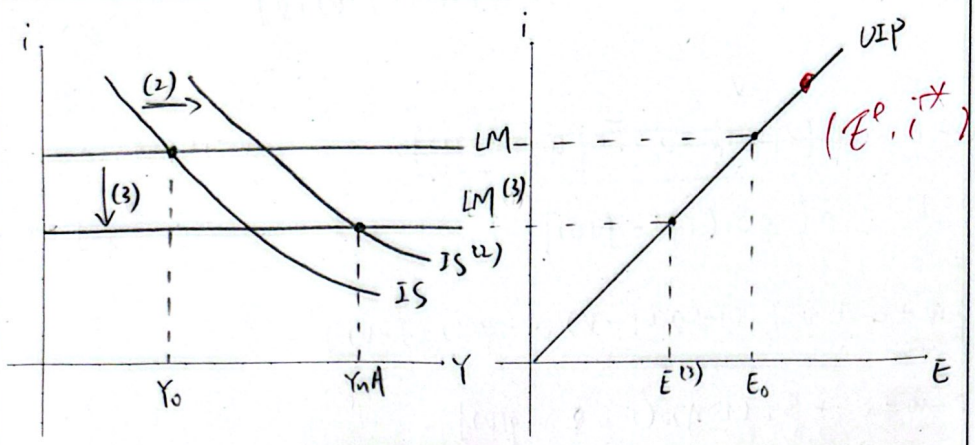
Policy mix: Increase government spending G as fiscal policy. Reduce real exchange rate ϵ at the same time.

Explanation:

G↑ means output Y↑ so that this help restore Y to Y_{nA}. $\epsilon\downarrow$ means NX↑ by Marshall-Lerner condition, shifting NX curve upwards so that $Y_{FB}\uparrow$ and help achieve $Y = Y_{FB} = Y_{nA}$

Question 8 (30 points, Continued)

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



Monetary policy:

Reduce the nominal interest rate i. By UIP condition. $1+i = 1+i^* \cdot \frac{E}{E^e}$. With i^* and E^e fixed, i must ↓ so that E↓. And because $\epsilon = E \cdot \frac{P}{P^*}$ with $P = P^* = 1$, $\epsilon = E$. So E↓ must imply ϵ↓, achieving the goal in (2).

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

Explanation: $C = c_0 + c_1(Y - T)$, Y↑ must cause C↑.

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

Explanation: I is characterized by $I(Y, i)$, Y↑ and i↓ in the new equilibrium must imply I↑

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

Explanation: The policy mix removes the initial trade surplus and restores trade balance ($NX = 0$) in new equilibrium

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