

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

34 + 2

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 handwritngs 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: CHEN, Nanjia

Student ID: 21009956

Seat Number: 13

**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:** *Amir*

## Multiple Choice Questions (20 points)

1	2	3	4	5
C	A	D	<del>B</del>	C

1 ✓

### Question 6 (15 points)

(1) (5 points)

In period  $t$ , the unemployment rate is at the natural rate with an inflation rate of 5%. D

$$\pi_t = 5\% + 0.4\pi_{t-1} - 0.5u_t.$$

$$\pi_t - \pi_{t-1} = 0.$$

$$\pi_t = 5\% + 0.4\pi_t - 0.5u_t.$$

$$0.5u_t = 5\% - 0.6\pi_t.$$

$$u_t = \frac{5\%}{0.5} - \frac{0.6\pi_t}{0.5}$$

$$u = 0.1 - 1.2u_t.$$



## Question 6 (15 points, Continued)

(2) (5 points)

Central bank keep same rate at period  $t+1$  and  $t+2$ .

$$\pi_{t+1}^e = 2.4\% + 0.4\pi_{t+1}$$

$$\pi_{t+1} = \chi + 0.4\pi_{t+1} - 0.5u_{t+1}$$

✱ Inflation should be 16%.

(3) (5 points)

government wants to achieve its inflation target 4% in Period  $t$ .  
means  $\pi_{t+1} = 4\% + 0.4\pi_{t+1} - \chi u_{t+1}$ .

$$\pi_{t+1}^e = 2.4\% + 0.4\pi_{t+1}$$

$$\pi_{t+1}^e = \pi_{t+1} = 4\% + 0.4\pi_{t+1} - \chi u_{t+1} = 2.4\% + 0.4\pi_{t+1}$$

$$4\% - \chi u_{t+1} = 2.4\%$$

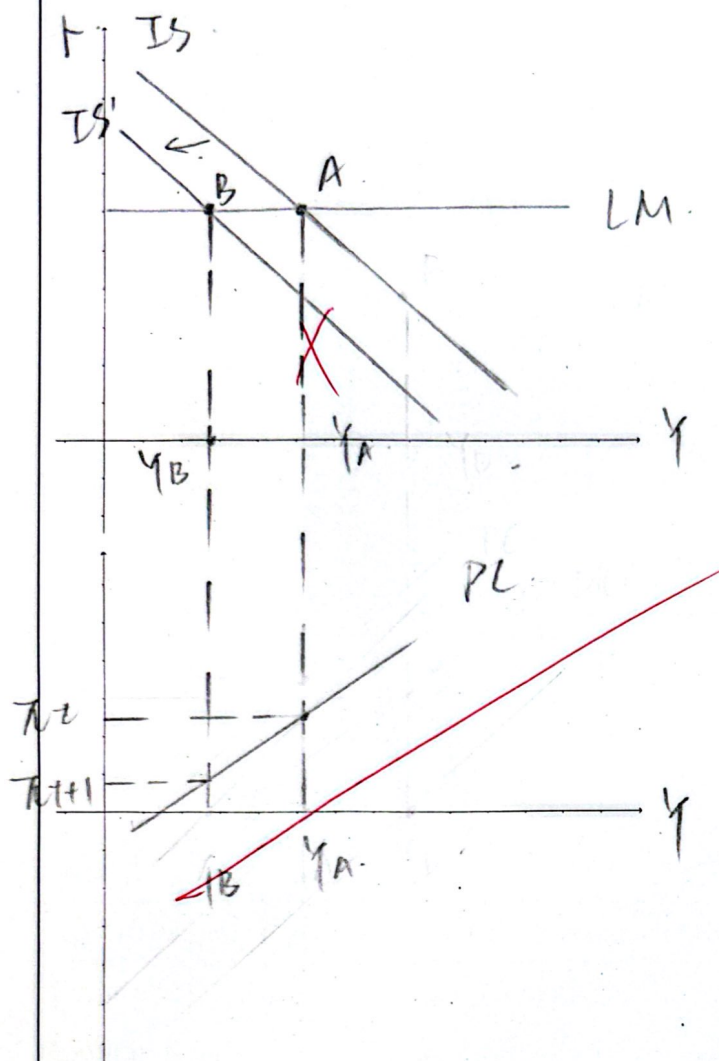
$$-\chi u_{t+1} = 2.4\% - 4\%$$

$$\chi u_{t+1} = 1.6\%$$

$$\chi = 0.016$$

# Question 7 (35 points)

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



~~6~~ 6

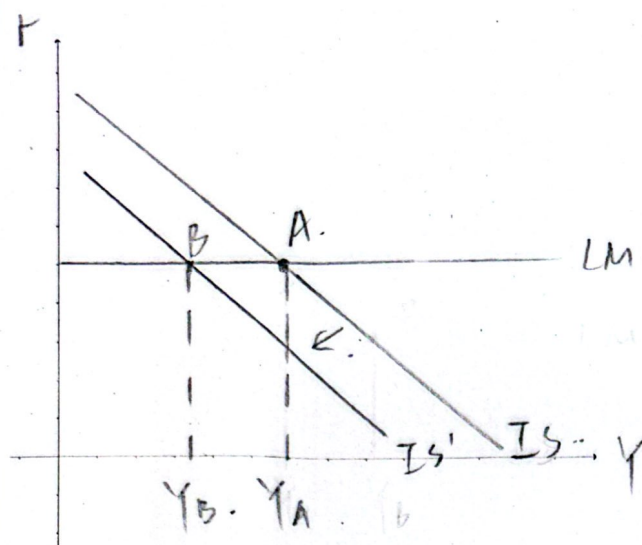
Effects:

AI shock  $\rightarrow$  Unemployment  $\uparrow \rightarrow Y \downarrow \rightarrow$  IS shift left.

$$Y_A > Y_B$$

# Question 7 (35 points, Continued)

(2) (10 points)



Effects:

AI shock  $\rightarrow$  unemployment  $\uparrow \rightarrow Y \downarrow$  (c.v. IS)  $\rightarrow$  IS curve shift left.  
 $\rightarrow Y_A > Y_B$

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

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

Explanation:

AI replace Humans workers. The efficiency increase. the quantity of goods increase. then the price of goods decrease. then inflation decrease.

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

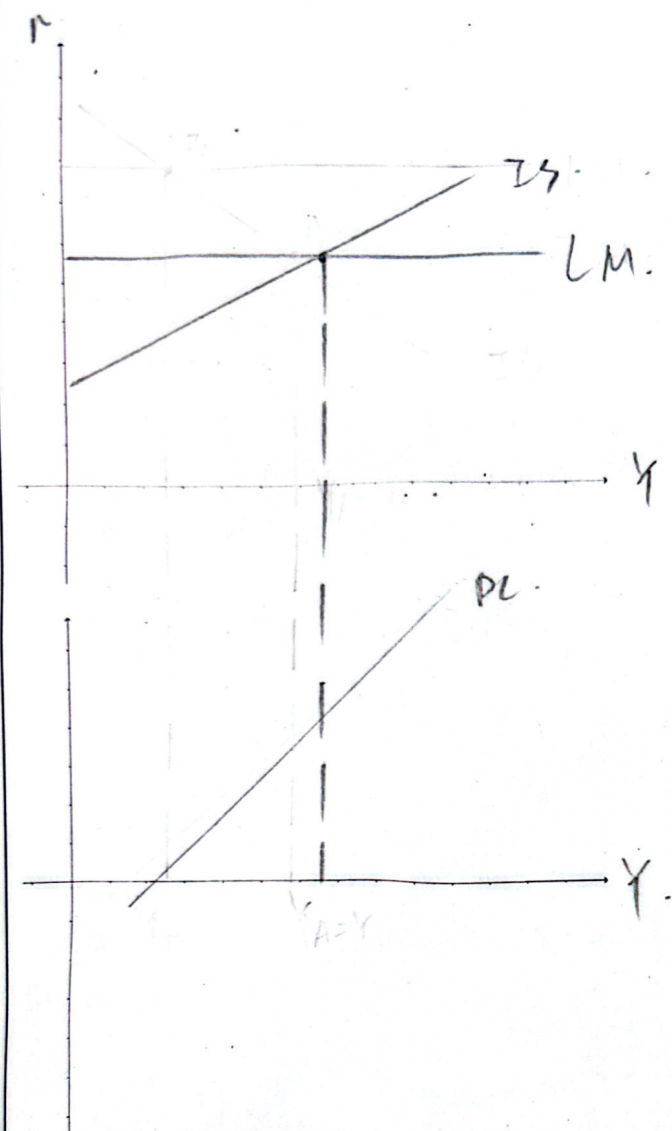
Explanation:

government cannot response. then more and more AI replace the human workers. then unemployment increases. people's affordable money decrease. then consumption decrease. then output decreases.



# Question 8 (30 points)

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

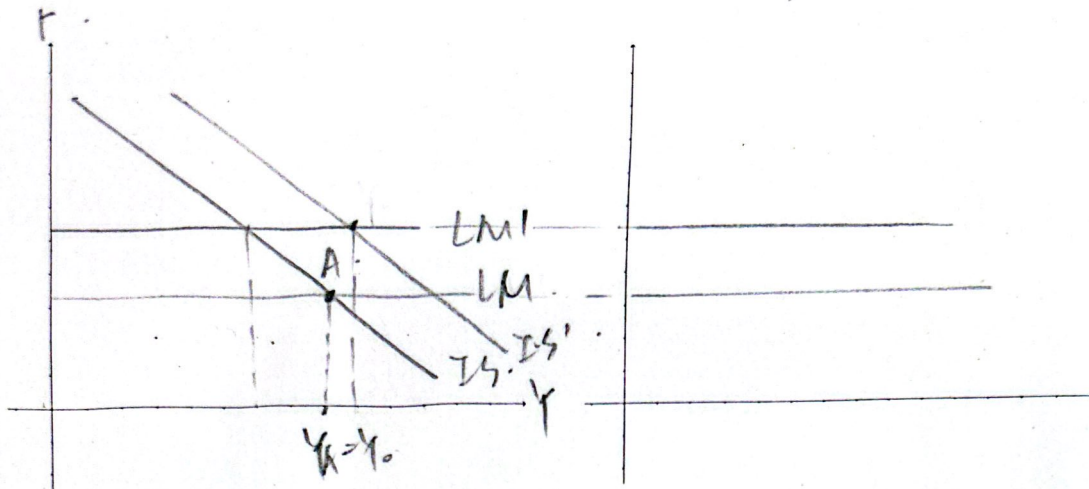


Policy mix: Increase rate.

Explanation:

## Question 8 (30 points, Continued)

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



Monetary policy:

Central bank increase the rate

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

Explanation:

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

Explanation:

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

Explanation:

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