EXAMINATION

Answer Book

Please complete the following :

Course Code : ECON 3123

Course Title : MACROECONOMIC

THEORY

Date of Examination : Oct 10, 2025

Student Number : 21249477

Student Name : KUZMIN SERGEI

Instructions :

1. Write your answers on the **RIGHT-HAND** page. Use the left-hand page only for rough work. Any work that appears on the left-hand page will **NOT** be marked.

2. Begin **EACH** question on a **NEW** page. Write down the question number at the top of each page.

3. No supplementary sheets may be submitted, unless allowed by the examiner.

4. No part of this answer book is to be taken away from the examination.

Enter the question numbers below in the **SAME ORDER** as you have answered the questions :

Question No.	For use by the examiner	
	Marks	
Total marks	26	

No. of answer books used :

N1.
'8 - labor force
Answer: ~~B~~

N2
Answer: D
N3
Answer: ~~A~~
N4
Answer: ~~A~~
N5
Answer: ~~D~~

N6.
a) $Y = C + I + G$

$Y = c_0 + c_1 Y_D + b_0 + b_1 Y - b_2 i + G$

$Y = c_0 + c_1 (Y-T) + b_0 + b_1 Y - b_2 i + G$

$Y = c_0 + c_1 Y - c_1 T + b_0 + b_1 Y - b_2 i + G$

$Y - c_1 Y - b_1 Y = c_0 - c_1 T + b_0 - b_2 i + G$

$Y(1 - c_1 - b_1) = c_0 - c_1 T + b_0 - b_2 i + G$

$Y(1 - c_1 - b_1) = c_0 - c_1(t_0 + t_1 Y) - b_2 i + G$

$Y(1 - c_1 - b_1) = c_0 - c_1 t_0 - c_1 t_1 Y - b_2 i + G + b_0$

$Y(1 - c_1 - b_1 + c_1 t_1) = c_0 - c_1 t_0 - b_2 i + G + b_0$ taxes?

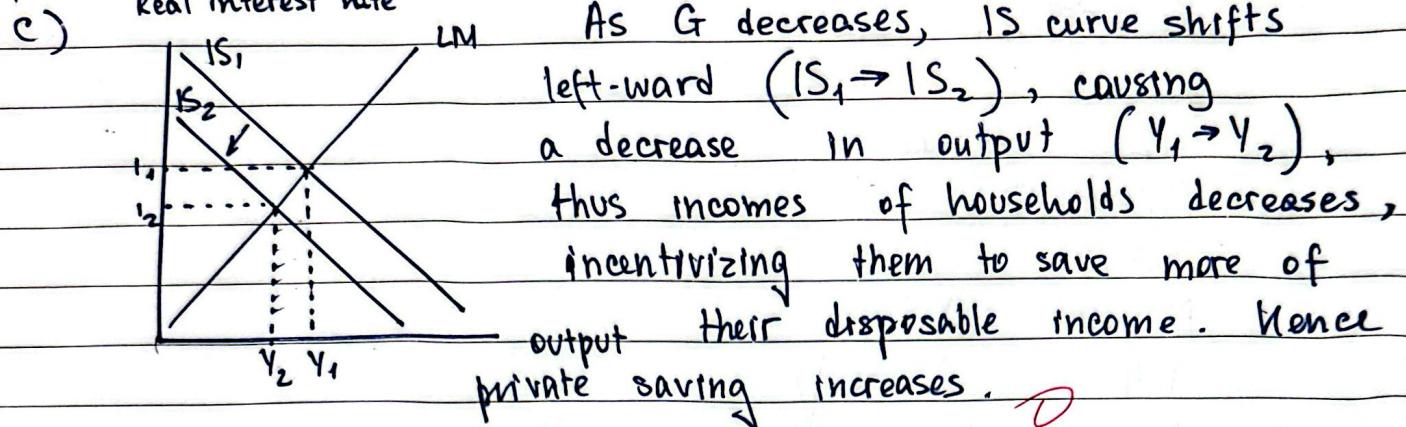$Y = \dfrac{c_0 - c_1 t_0 - b_2 i + G + b_0}{1 - c_1 - b_1 + c_1 t_1}$ as $t_1 \in [0;1]$ and $c_1 + b_1 < 0.5$

$1 - c_1 - b_1 + c_1 t_1 > 0$

b)
A drop in b_0 would result in ~~a~~ a lower equilibrium output, as it is a part of addition (seen in previous part), thus, taxes would decrease, as they are dependent on output ($T = t_0 + t_1 Y$). As taxes fall, if G must equal T, G should decrease as well.

This reinforces the effect of the drop in b_0, as due to a left-ward shift of the IS curve, it does not bring output to the initial level.

c)

Real interest rate

As G decreases, IS curve shifts left-ward $(IS_1 \to IS_2)$, causing a decrease in output $(Y_1 \to Y_2)$, thus incomes of households decreases, incentivizing them to save more of their disposable income. Hence private saving increases.

N7.

a) $Z = C + I + G \Rightarrow$

$Z = 0.5 + 0.2 (Y - T) + 0.2 + 0.3Y - 2.5(\bar{i} + x) + 1$

$Z = 0.5 + 0.2Y - 0.2 + 0.2 + 0.3Y - 2.5\bar{i} - 2.5x + 1$

$Z = 0.5 + 0.5Y - 2.5\bar{i} - 2.5x + 1 \qquad Z = Y$

$Y = 0.5 + 0.5Y - 2.5\bar{i} - 2.5x + 1$

$0.5Y = 1.5 - 2.5(\bar{i} + x)$

$Y = 3 - 5(\bar{i} + x)$

$Y = 3 - 5(\bar{i} + 0.05)$

$FV = 100\$$

$$P = \frac{F}{(1+i)^n} \qquad\qquad i+RP$$

a) 1st year: $\frac{100}{1.04} \approx 96.15\$$

2nd year: $\frac{96.15}{1.09} \approx 88.21\$$

b) 1st year: $P = 96.15\$$

2nd year: $\frac{96.15}{1+0.03+0.05} \approx 89.03\$$

3rd year:

a) 1st year: $\frac{100}{0.96} \approx 104.17\$$

2nd year: $\frac{104.17}{1-(0.04+0.05)} \approx 114.47\$$

b) 1st year: $P \approx 104.17\$$ (part a)

2nd year: $\frac{104.17}{1-(0.03+0.05)} \approx 113.23\$$

3rd year:

$\frac{113.23}{1-(0.02+0.05)} \approx 121.75\$$

c) $(1-i)^n = \frac{F}{P}$

$(1-i) = \left(\frac{F}{P}\right)^{\frac{1}{n}}$

$1-\left(\frac{F}{P}\right)^{\frac{1}{n}} = i \implies 1-\left(\frac{100}{121.75}\right)^{\frac{1}{3}} \approx 0.063$

Yield $\approx 6.3\%$

①