

EXAMINATION

Please complete the following :

Course Code : ECON3123

Course Title : Macroeconomics

Theory (I)

Date of Examination : 10/10/2025

Student Number : 21167502

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Declaration of Academic Integrity

I confirm that I have answered the questions using only materials specifically approved for use in this examination, that all the answers are my own work, and that I have not received any assistance during the examination.

Student's Signature :



Answer Book

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	83	

No. of answer books used :

Checked by Yang Lu.

MC

- | | | | | |
|-------------------|------|-----------------|------|------|
| 1. B D | 2. D | 3. A | 4. D | 5. C |
|-------------------|------|-----------------|------|------|

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Short Questions

Q6

(a) $Z = C + I + G$, For equilibrium output $Y = Z$,

$$Y = C_0 + C_1 Y_0 + b_0 + b_1 Y - b_2 i + G$$

$$= C_0 + C_1(Y - T) + b_0 + b_1 Y - b_2 i + G$$

$$= C_0 + C_1(Y - t_0 - t_1 Y) + b_0 + b_1 Y - b_2 i + G$$

$$= C_0 + C_1(1 - t_1)Y - C_1 t_0 + b_0 + b_1 Y - b_2 i + G$$

$$[1 - C_1(1 - t_1) - b_1]Y = C_0 - C_1 t_0 + b_0 - b_2 i + G$$

$$Y = \frac{C_0 - C_1 t_0 + b_0 - b_2 i + G}{1 - C_1 - b_1 + C_1 t_1}$$

$$T = t_0 + t_1 Y$$

$$= t_0 + t_1 \left[\frac{C_0 - C_1 t_0 + b_0 - b_2 i + G}{1 - C_1 - b_1 + C_1 t_1} \right]$$

$$= \frac{t_0 - t_0 C_1 - t_0 b_1 + t_0 C_1 t_1 + t_1 C_0 - t_1 C_1 t_0 + t_1 b_0 - t_1 b_2 i + t_1 G}{1 - C_1 - b_1 + C_1 t_1}$$

$$= \cancel{\frac{t_0 + t_1 b_1 + t_1 G}{1 - C_1 - b_1 + C_1 t_1}} = \frac{t_0(1 - C_1 - b_1) + t_1(C_0 + b_0 - b_2 i + G)}{1 - C_1 - b_1 + C_1 t_1}$$

$$= \frac{t_0 + t_1 C_0 - t_1 C_1 + t_1 b_0 - t_1 b_1 - t_1 b_2 i + t_1 G}{1 - C_1 - b_1 + C_1 t_1}$$

(b)

T decreases when b_0 decreases.

To maintain a balanced budget $G = T$,

the government will lower G if T drops

~~Therefore, T further decreases when G decreases~~

For total output Y , when b_0 drops Y decreases.

However, the decreased G by government further intensifies the effect of decreasing Y , which makes output decrease even more.

Q6 (c) Private Saving $S = Y - T - C$

$$= Y - T - C_o - C_r(Y - T)$$
$$= (1 - C_r)(Y - T) - C_o$$

T drops because of b_o 's drop.

Y drops in the factors of both the decreases of b_o and G ,

so Y drops more than T . Private saving decreases.

✓

Q7.

(a) $Z = C + I + G$, for equilibrium output $Y = Z$

$$Y = C + I + G$$

$$= 0.5 + 0.2(Y - 1) + 0.2 + 0.3Y - 2.5(\bar{i} + 0.05) + 1$$

$$= 1.375 + 0.5Y - 2.5\bar{i}$$

$$0.5Y = 1.375 - 2.5\bar{i}$$

$$Y = 2.75 - 5\bar{i}$$

| D

(b) $\frac{M^d}{P} = Y(0.7 - 4\bar{i}) = (2.75 - 5\bar{i})(0.7 - 4\bar{i})$ by (a)

$$\frac{M^d}{2} = (2.75 - 5(0.05))(0.7 - 4(0.05))$$

$$M^d = 2.5$$

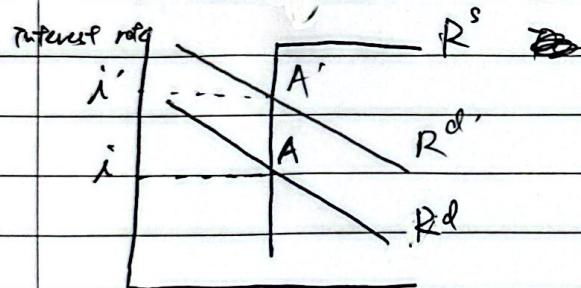
$$H^d = [c + \theta(1-c)] M^d$$

| D

$$= [0.2 + (0.25)(1-0.2)] (2.5) = 1$$

-'. Monetary base that can achieve the interest rate
Target is 1

(c) When the crisis leads to a higher reserve ratio,
the reserve demand R^d increases, interest rate increases,



If the central bank wants to restore to 5%,

$$H^d = [0.2 + (0.3)(1-0.2)] (5) = 1.1$$

1.1 will be the new equilibrium ~~target~~ monetary base.

Q7

(d) New $Y = 0.5 + 0.2(Y-1) + 0.2 + 0.3Y - 2.5(0.25 + 0.15) + 1$

$$0.5Y = 1, Y = 2$$

$$\frac{M^d}{2} = (2)(0.7 - 4(0.05))$$

$$M^d = 2$$

$$M^d = [0.2 + (0.3)(1-0.2)](2) = 0.88$$

∴ New monetary base = 0.88

Question 8

(a) Current price for the 2-year bond

$$= 100 \left(\frac{1}{1+0.04+0.05} \right) \left(\frac{1}{1+0.03} \right) \approx 89.071$$

(b) ~~Current~~ Current price for the 3-year bond 20

$$= 100 \left(\frac{1}{1+0.04+0.05} \right) \left(\frac{1}{1+0.03+0.05} \right) \left(\frac{1}{1+0.02} \right)$$

$$\approx 83.282$$

(c) Current Yield = $\frac{100 - 83.282}{83.282} \times 100\%$.

$$= 20.074\%.$$