Eco 202 — Final May 2004 — Solutions

1 (a) $Y = A(\underset{+}{Y}, \underset{-}{T}, \underset{-}{r}, \underset{+}{Y'^e}, \underset{-}{T'^e}, \underset{-}{r'^e}) + G$ (IS)

$\frac{M}{P} = Y L(\underset{-}{i})$ (LM)

(b) $Y \downarrow$, $r \downarrow$ move along LM to left

(c) uncertain: – $G \downarrow$ → IS left

– $Y'^e \uparrow$, – $r'^e \downarrow$ } → IS right

depending which effect is stronger IS can either shift to left ($Y\downarrow$, $r\downarrow$) or right ($Y\uparrow$, $r\uparrow$)

(d) small cut today (+ announcement):
positive effect of change in expectations without negative effect of $G\downarrow$
⇒ more likely $Y\uparrow$ in short run

(e) use $M^s \uparrow$ (LM right) to offset $G\downarrow$
⇒ $Y\uparrow$ in short run

2 (a). $MPC_{y^p} = \frac{\Delta C}{\Delta y^p} = 0.75$

(b) $MPC_{y_t} = \frac{\Delta C}{\Delta y^t} = \frac{\Delta C}{\Delta y^p} \cdot \frac{\Delta y^p}{\Delta y^t} = 0.75 \left(\frac{1}{6}\right)$

$= 0.125$

3

0	1	2	3	...
	40k	40k		
	-2.2k	-2.2k	37800	...
	37800	37800		

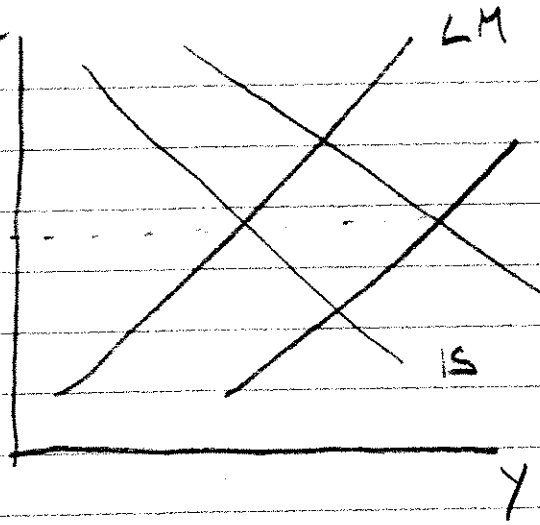
$PV = \frac{37800}{0.08} = 472500$ maximum price for permission

4

$-5 = \frac{1}{2}(3 + i^e_{t+1}) \Rightarrow i^e_{t+1} = 7\%$

$-7 = \frac{1}{3}(3 + 7 + i^e_{t+2}) \Rightarrow i^e_{t+2} = 11\%$

Q5 (a)

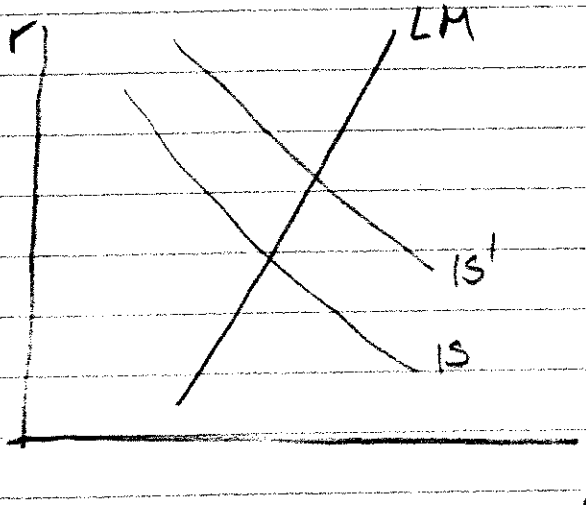


$i \rightarrow$

$Y \uparrow\uparrow$

$\Rightarrow$ stock price $\uparrow\uparrow$

(b)



$r \uparrow\uparrow$

$Y \uparrow$

stock price $\downarrow\downarrow$

($r \uparrow$ more than Y)

Q6 + Q7

see textbook

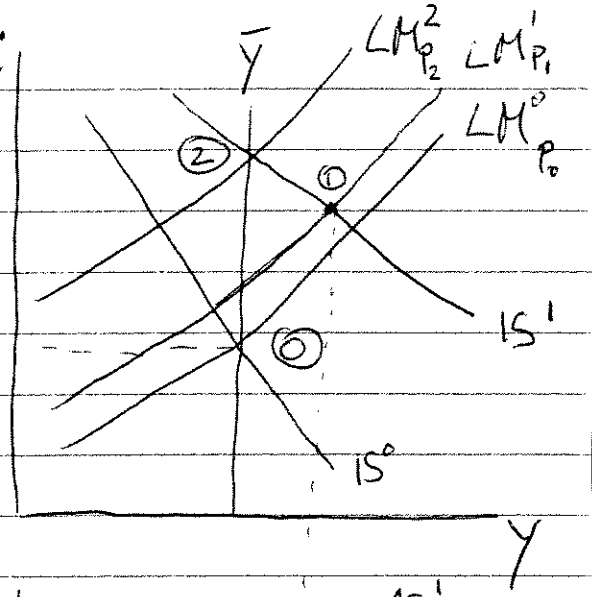
Q8 1) Set Reserve requirement

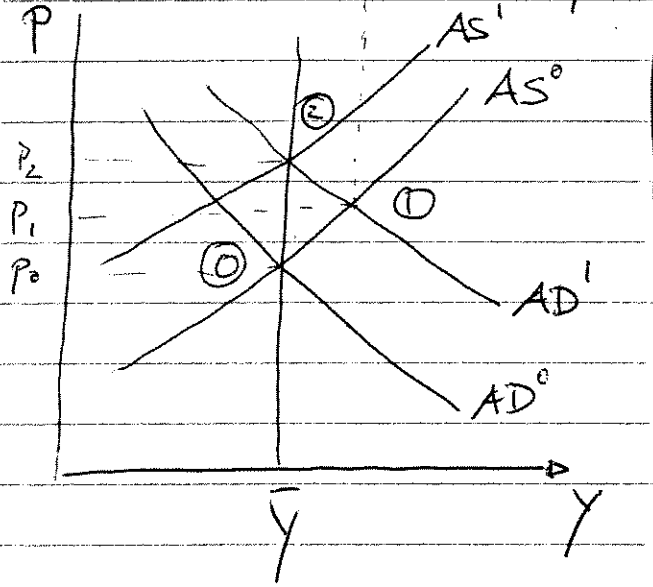
2) Set Bank rate (maximum interest rate)

3) Open market operations

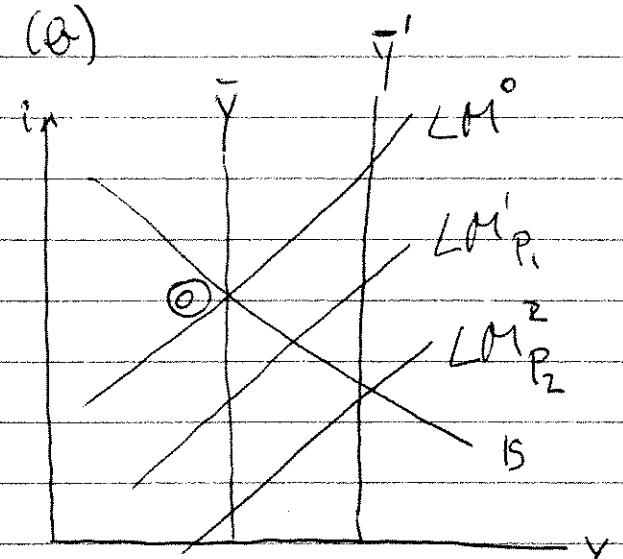
Bof(C) Bank Rate

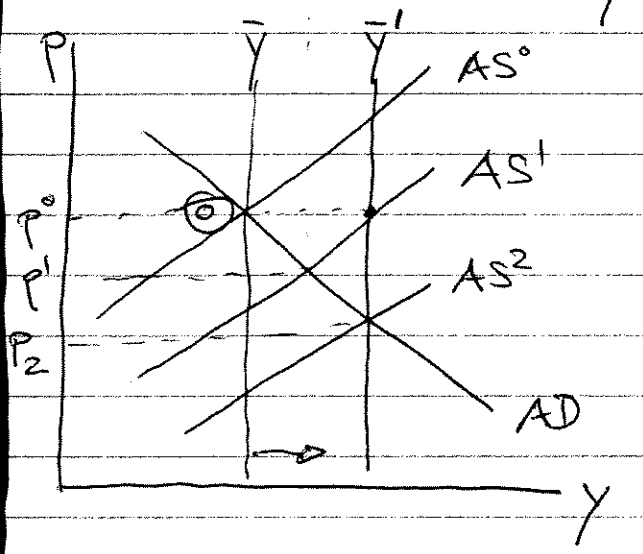
19 (a)





(b)





⓪ old medium run eqSm

① short run eqSm

② new medium run eqSm

compare old to new eqSm:

$Y = \bar{Y}$, but i and P up (crowding out)

natural level ↑

→ AS shifts ($\bar{Y}'$, $P^e = P^0$)

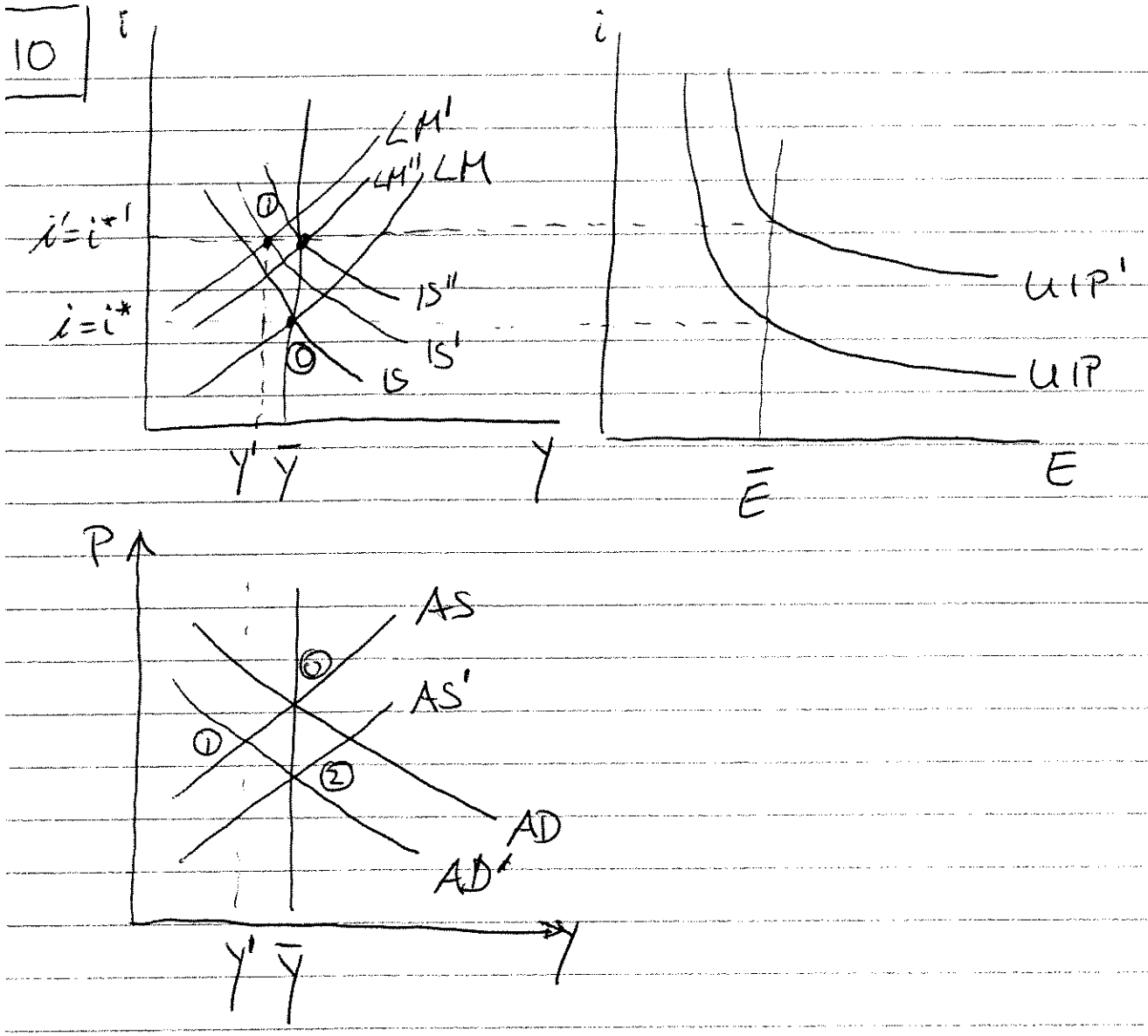
→ P ↓

⇒ LM shifts

expectations adjust → second shift

⇒ C, I ↑ for $\bar{Y}$ ↑ → $\bar{Y}'$

10



expl: i^* ↑ → i ↑ (through capital outflow)

→ I ↓ (LM left)

→ IS, AD left

→ $Y < \bar{Y}$

⇒ AS right, P ↓

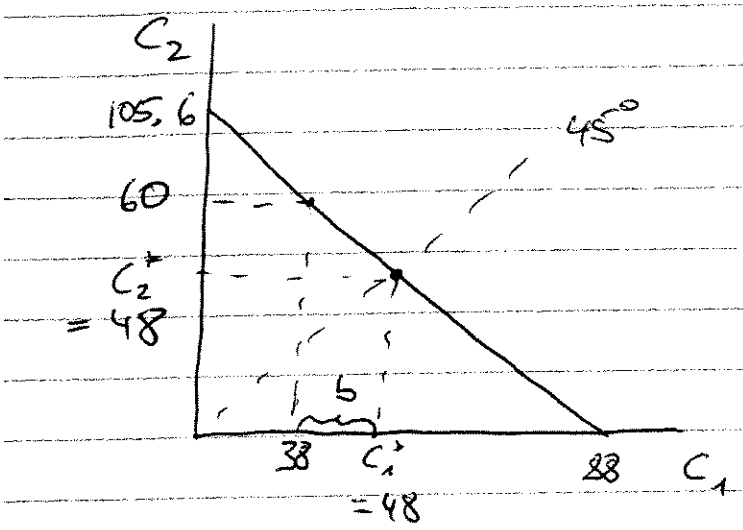
→ e depr → IS right

→ LM right

2.11 $Y_1 = 38$, $Y_2 = 60$, $i = 0.2$

$PV_1 = 38 + \frac{60}{1.2} = 88$

$FV_2 = 38(1.2) + 60 = 105.6$



$C_1^* = 38 + b$

$C_2^* = 60 - b(1.2)$

$C_1^* = C_2^*$

$\Rightarrow b = \frac{60-38}{2.2} = 10$

$\Rightarrow C_1^* = C_2^* = 48$

12 see course booklet for long answers (similar questions)

a) yes: double $K, N \rightarrow$ double Y

b) $y = k^{1/2} = \sqrt{k}$

c) $\Delta k = s\sqrt{k} - (\delta + n + g)k$

d) SS: $\Delta k = 0$

$$k^* = \left(\frac{s}{(\delta+n+g)}\right)^2 = (1.25)^2$$

$$y^* = 1.25 \quad , \quad c^* = 0.85\, y^* = 1.0625$$

e) zero (by defn)

f) $g = 0.02$, 2%

g) $g + n = 0.03$, 3%

h) $(\delta + n + g)$ curve shifts up $\rightarrow k^* \downarrow$

people are better off: per worker output grows at a faster rate

13

.) $PV = 500 + 500\left(\frac{1 - \frac{1}{(1.05)^4}}{.05}\right)$

.) $PV = \frac{1}{(1.05)^3} \underbrace{1000\left(\frac{1 - \frac{1}{(1.05)^5}}{.05}\right)}_{PV_3}$

.) $PV = \frac{1}{(1.05)^4} \underbrace{\frac{1000}{.05}}_{PV_4}$