Number: _____

ECONOMICS 302
INTERMEDIATE MACROECONOMICS
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DEPARTMENT OF ECONOMICS
UNIVERSITY OF BRITISH COLUMBIA
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Second mid-term Exam, Thursday, March 15, 2012 - Answers

Write your number from the sign-in sheet at the top of this exam. Read all directions carefully. You have 80 minutes to complete this exam. There are several choices on the exam – choose well. Put all numerical answers in a box. Show all of your work! Total points: 60.

Part A: **Identification**. Provide a short but complete definition for **2** of the following **3** terms (3 points each, 6 points total).

1. Seigniorage: the revenue collected by the government via money creation. No central bank can avoid collecting seigniorage, the point is to avoid collecting excessive seigniorage. One form of seigniorage = $S = \Delta M/P$ represents the goods and services purchased by the additional nominal money balances. Another form of seigniorage is the flow seigniorage represented by the interest payments the government pays on the bonds the central bank buys in the open market operation since these interest payments are returned by the central bank to the government.

2. Consol bonds: also called perpetuities, these are bonds that never pay a face value but promise to pay the owner a fixed coupon payment every year forever. The present value formula for such a bond is $PV = C/r$.

3. Efficiency wages: the idea that firms will pay more than the market equilibrium wage to get more work out of its labor force since a real wage higher than the equilibrium wage will, 1) allow workers better nutrition and health care which will make them better workers with fewer sick days (this is likely to be important only in developing countries), 2) improve the average quality of the labor force as the firm will be able to retain its best workers (who are likely to have good alternatives elsewhere), 3) reduce turnover costs (severance for departing workers and training costs for new workers) as workers are less likely to voluntarily separate from a firm that is paying above equilibrium wages, and 4) better align the worker with the firm's goals by increasing the cost of job loss to workers; in this way worker will work harder, enjoy less on the job leisure for fear of getting fired and need less oversight and monitoring so management costs can be reduced.

Part B: **True, False, Uncertain and Explain**. Answer **3** of the following **4** questions. (8 points each, 24 points total; all credit for the explanation)

4. Consider the following two statements: 1) The Prime Minister says more people are working now than when he took office. 2) The head of the opposition party says that the unemployment rate is higher now than when the Prime Minister took office. Given these statements assess whether the following is true or false and explain your answer: it is possible that both the Prime Minister and the head of the opposition party are telling the truth.

True. Both of them could be telling the truth if the labour force grew faster than employment. This is possible if some of the unemployed believe prospects for finding a job are improving and they return to the labour force as active job searchers. Some of them will get jobs and some will not immediately find a job. Thus employment increases (so the Prime Minister is telling the truth) but since the unemployment rate, u, is

$u = U/LF = 1 - (\text{Employed}/LF)$ and the labour force is growing faster than employment the term in parentheses is falling so the unemployment rate is rising meaning the head of the opposition party can also be telling the truth.

5. The more sensitive liquidity demand to changes in the interest rate, the flatter the aggregate demand curve.

False. If money demand is more sensitive liquidity demand to changes in the interest rate then money demand is more interest elastic meaning the liquidity demand function is relatively flat or at least, flatter than usual. Then when the price level falls so that real money balances (Ms/P) increase, the interest rate will fall by less, so investment will increase by less. and output, Y, will increase by less. Thus for a given fall in the aggregate price level output increases by less so the AD curve steeper not flatter.

6. The more sensitive liquidity demand to changes in real output, the flatter the aggregate demand curve.

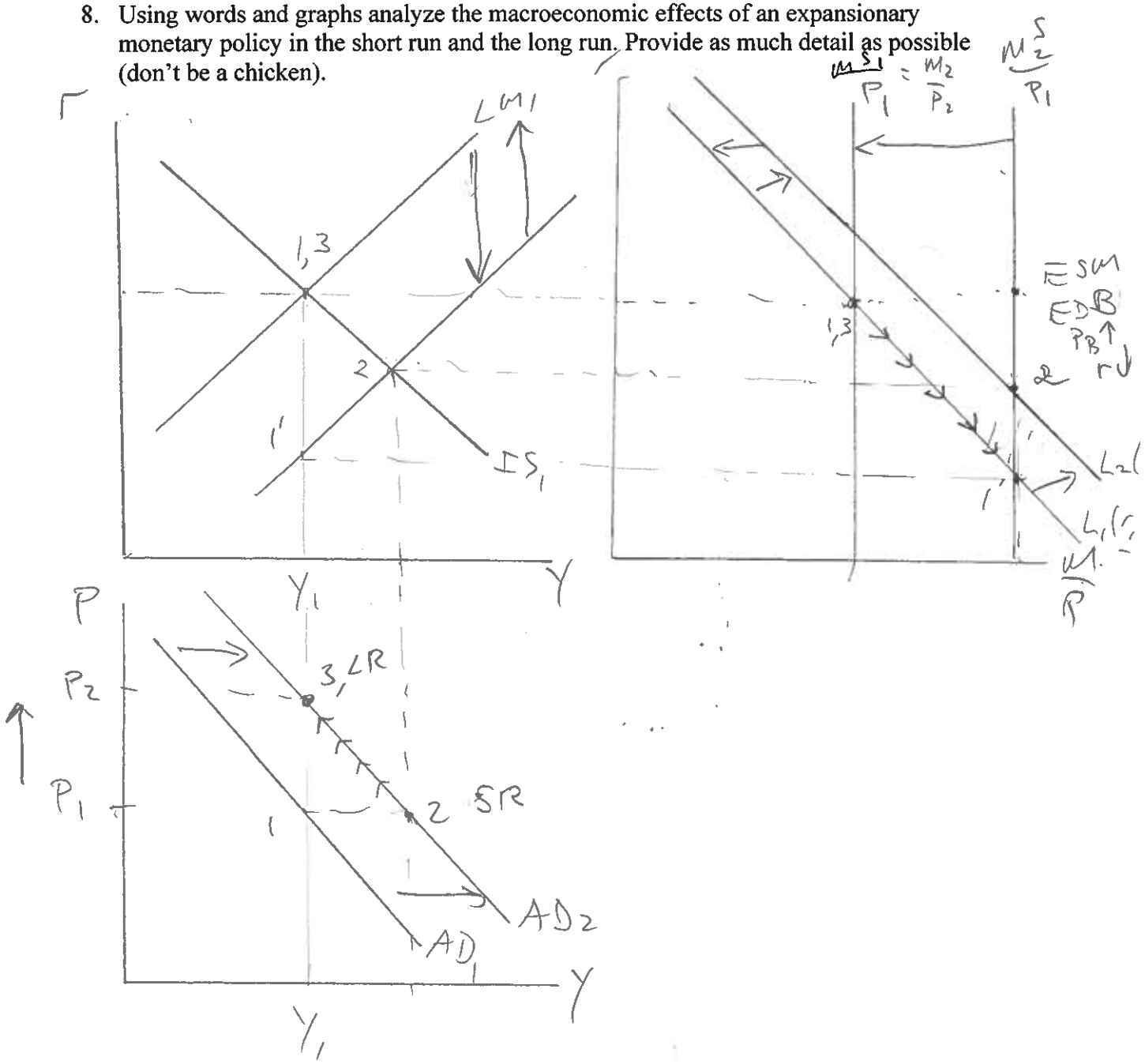
False. If money demand is more sensitive to changes in real output then the transactions demand for money is very strong and for any increase in output the liquidity demand function shifts right more. This means, other things equal, interest rates rise more which means investment falls by more and output increases by less so the aggregate demand curve is steeper. Working through this, suppose the aggregate price level falls so real money balances, Ms/P, increase and interest rates fall. This last increases aggregate expenditure and output. The increase in output in this case leads to a larger increase in the transactions demand for money and interest rates rise which chokes off much of the former increase in investment and output. Thus for a given fall in the aggregate price level in this case, output increases by less giving a steeper aggregate demand curve.

7. When an economy suffers from large shocks to consumer confidence monetary policy can be used to stabilize both output and interest rates.

False. As we discussed in class, the monetary tool is the "wrong" tool for a real side shock. The fall in consumer confidence shifts the IS curve to the left. If the central bank wishes to stabilize output it will have to reduce interest rates to encourage investment expenditure to replace the lost consumption spending. If the central bank wishes to keep interest rates constant it will have to reduce the money supply which shifts the LM curve up and "validates" the fall in consumption expenditure, that is, exacerbates the all in consumption so output falls by more. Thus the central bank faced with a real side shock to consumption can either stabilize output or interest rates but not both.

Part C: **Longer Questions** Answer the next **2** questions (15 points each, 30 points total).

8. Using words and graphs analyze the macroeconomic effects of an expansionary monetary policy in the short run and the long run. Provide as much detail as possible (don't be a chicken).



9. Consider the following economy:

C = 400 + 0.8(Y – T)	Ms = 1000
T = 500 + 0.25Y, G = 600	L(r, Y) = 0.5Y – 100r
I = 1000 – 40r	P = 2

a. Using the information above write the equation for the IS curve. [3 points]

The IS curve is Y = C + I + G.
This gives Y = 400 + 0.8(Y – 500 – 0.25Y) + 1000 – 40r + 600.
Solving for Y gives
Y = 4000 – 100r.

b. Using the information above write the equation for the LM curve. [3 points]

The LM curve is Ms/P = L(r, Y) or 1000/2 = 0.5Y – 100r so
500 = 0.5Y – 100r.

c. Calculate the equilibrium output, real interest rates, consumption, investment and government budget balance. [5 points]

The equilibrium is the combination or r and Y where the goods market, the money market and the bond market are in equilibrium. Put the expression for the IS curve into the LM curve and solve for r:
500 = 0.5(4000 – 100r) – 100r.
This yields **r = 10 = 10%.**

Y = 3000, I = 600, C = 1800 and T – G = 600 – (500 + 0.25(3000)) = 650 which is a government budget surplus.

d. If government spending increases by 100 calculate the new equilibrium output, and the amount of investment that has been crowed out from part c. [2 points]

Y = 400 + 0.8(Y – 500 – 0.25Y) + 1000 – 40r + 700.
Solving for Y gives, Y = 4250 – 100r.
The LM curve is the same as above so 500 = 0.5Y – 100r. In equilibrium we get:
500 = 0.5(4250 – 100r) – 100r so **r = 10.83 = 10.83%.**
Y = 3177, I = 566.67 so ΔI = -33.33.

e. Return to the situation where government spending is 600. Suppose the economy is at potential GDP of 2800 and price level is allowed to vary so P ≠ 2. Calculate the new equilibrium price level, real interest rate and investment. [2 points]

Here IS curve Y = 4000 – 100r. Since Yp = 2800 the IS curve gives **r = 12 = 12%.** From the LM curve we get: 1000/P = 0.5(2800) – 100(12) = 1400 – 1200, so 1000/P = 200 and **P = 5**, **I = 1000 – 40(12) = 520**.