

Exam 2 – Econ 304 – Chuderewicz – Spring 2014

Name _____ Last 4 (PSU ID) _____

**PLEASE PUT THE FIRST TWO LETTERS OF YOUR LAST NAME ON TOP RIGHT
HAND CORNER OF THIS COVER SHEET – THANKS AND GOOD LUCK!!!**

1. THIS IS THE GENERAL EQUILIBRIUM PROBLEM THAT I PROMISED. YOU FIRST SOLVE FOR THE INITIAL EQUILIBRIUM AS POINT A. WE CONSIDER TWO DIFFERENT AND SEPARATE SHOCKS (I CALL THEM SCENARIOS). THE FIRST SHOCK IS TO THE LM CURVE, THE SECOND SHOCK IS AN 'IS' SHOCK. AGAIN, WE CONSIDER THESE SHOCKS SEPARATELY SO THAT AFTER YOU COMPLETE SCENARIO 1 (THE LM SHOCK), WE GO **BACK TO THE ORIGINAL CONDITIONS** AND CONSIDER THE SECOND SCENARIO WHICH IS THE 'IS' SHOCK.

Consider the following model of the economy

Production function: $Y = A \cdot K \cdot N - N^2/2$

Marginal product of labor: $MPN = A \cdot K - N$.

where the initial values of $A = 6$ and $K = 10$.

The initial labor supply curve is given as: $N^s = 20 + 4w$

Initial conditions in the goods market

$$C^d = 130 + .50(Y-T) - 500r$$

$$I^d = 704 - 500r$$

$$G = 150$$

$$T = 100$$

$$M^d/P = 166 + 0.5Y - 1000r$$

We assume that expected inflation is zero ($\pi^e = 0$) so that money demand depends directly on the real interest rate (since $i = r$).

Nominal Money supply: $M = 2000$

1 a) (**6 points**) Solve for the labor market clearing real wage (w^*), the profit maximizing level of labor input (N^*), and the full employment level of output (Y^*). Please show work.

In the space below, draw two diagrams vertically with the labor market on the bottom graph and the production function on the top graph. Be sure to label everything including this initial equilibrium point as point A. (10 points for completely labeled and correct diagrams)

b) (4 points) Derive an expression for the IS curve (r in terms of Y). Please show all work

c) (3 points) Find the real interest rate that clears the goods market. Please show all work

d) (3 points) Find the price level needed to clear the money market. Please show all work

e) (4 points) Find the expression for the LM curve (r in terms of Y). Please show all work