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ECO2142 Macroeconomic Theory I
Midterm

Problem 1: Micro-foundation of Unemployment (10 points)
Many microeconomic models have presented rational arguments explaining the presence of unemployment in a market economy.

a) Give the intuition underlying Shapiro and Stiglitz's shirking efficiency wage model. (5 points)

b) Give the intuition underlying Salop's labor turnover efficiency wage model. (5 points)

Problem 2: Nominal Wage Rigidity and the Optimal Production Level (25 points)
Consider an economy in which the production sector can be represented by a representative competitive firm (this implies that the firm is a price taker). The firm's production function is $Y = f(N) = 25 \ln L$. Let P be the price level and ω be the nominal wage. The labor supply in this economy is given by $N^s = \omega/P$

a) Write down the profit function of the firm. (5 points)

b) What is the firm's labor demand for a given nominal wage ω and an expected price level P^e? (5 points)

c) If the expected price level is equal to 1, what is the equilibrium nominal wage? (5 points)

d) Assume now that the nominal wage found in (c) is rigid. What is the firm's labor demand as a function of the price level P? (5 points)

e) What is the level of production of this firm if the price level is P? (5 points)

Problem 3: Theoretical knowledge of the $IS-LM$ model (40 points)
Consider a closed economy. Let $C(Y-T,i)$ be the consumption function and $I(Y,i)$ the investment function. Y represents total output and i, the interest rate. Assume that government spending, G, and total taxes, T, are exogenous.

a) Is consumption an increasing or a decreasing function of disposable income and interest rate? Explain. (5 points)

b) Is investment an increasing or a decreasing function of total output and interest rate? Explain. (5 points)

c) Explain how equilibrium output is obtained for a given interest rate. (5 points)

d) Explain how the IS curve is obtained. What does a point of this curve represent? (5 points)

Suppose now that liquidity demand is given by $L(Y,i)$.

e) Is $L(Y,i)$ an increasing or a decreasing function of total output and interest rate? Explain. (5 points)

f) Describe the equilibrium on the financial market. (5 points)

g) Explain how the LM curve is obtained. What does a point of this curve represent? (5 points)

h) Explain how the equilibrium of the $IS-LM$ is obtained. (5 points)

Problem 4: Macroeconomic Policies (25 points)
Consider the $IS-LM$ model of a closed economy.

a) Give the impact of an increase in public spending, G, on total production, Y, the interest rate, i and on private investment, I. (8 points)

b) Give the impact of an increase in real money supply, $\frac{M^s}{P}$, on total production, Y, the interest rate, i and on private investment, I. (8 points)

c) If you had to chose between those 2 types of public policies, which one will you chose? Consider two cases. For the first case, the interest rate, i is strictly positive and in the second case, it is 0. (9 points)