ECONOMICS 320

MIDTERM EXAMINATION

WINTER 2009

B. LAPHAM

There are FOUR questions with point allocations as follows:

1. **A. 12 points**
   B. 6 points
2. **10 points**
3. **A. 12 points**
   B. 12 points
4. **A. 13 points**
   B. 12 points
   C. 15 points
   D. 8 points

JUSTIFY YOUR ANSWERS.

1. Many people agree that the United States is in a recession. Let's assume that there was an exogenous event that led to U.S. bank failures, making it much more difficult for consumers and firms to borrow.

1.A. (12 points) Compare and contrast the Keynesian perspective with the Neoclassical (Real Business Cycle) perspective to explain how this event can lead to a recession and to argue how the U.S. government should respond using fiscal policy.

1.B. (6 points) Explain how models of **self-fulfilling prophesies** would argue that expectations by consumers and firms will affect the severity and length of the recession.

2. (10 points) Consider the search model of unemployment we discussed with heterogeneous households and with preferences for household i of the following form:

$$u_i(c_i, l_i) = c_i + \nu_i l_i,$$

where $c_i \geq 0$ is consumption, $l_i \in \{0, 1\}$ is leisure, and $\nu_i \geq 0$ is a parameter.

Use the diagram which shows the reservation wage, the reservation search wage, and the reservation leisure value to demonstrate that this model predicts that when a employed household receives a pay cut (a decrease in their current wage) that they may become unemployed or may become a non-participant.

3. Suppose we observe in the data that increases in government spending have no effect on output but cause private consumption to fall.

3.A. (12 points) Assume that the government balances its budget and uses **income tax** financing of households. Explain how our labour market model **could be** consistent with the above data observation. Use an indifference curve diagram to support your answer.

3.B. (12 points) Assume that the government balances its budget and uses **lump-sum** tax financing of households. Explain how our labour market model **cannot be** consistent with the above data observation. Use an indifference curve diagram to support your answer.

4. Suppose there is a single household who has preferences over its consumption of a final good and its leisure time. Household preferences are given by the following utility function:

$$u(c,l) = \left[c^{.2} + l^{.2}\right]^{5},$$

where $c \geq 0$ is household consumption of the final good and $0 \leq l \leq 1$ is leisure.

The household has one unit of time to divide between working and leisure and it receives income only from working. Let the price of the final good be equal to 1.

There is also a single firm which uses the household's labour to produce the final good with the following technology:

$$y = zn,$$

where $y > 0$ is output of the final good, $0 \leq n \leq 1$ is labour input, and $z > 0$ is a random technology parameter.

For questions 4.A and 4.B, assume that households and firms have full information when they make their choices.

4.A. (13 points) Derive the equilibrium levels of the real wage, labour input, consumption, and output as a function of the technology parameter, z.

4.B. (12 points) Demonstrate how this example economy can be used to generate business cycles in aggregate variables which are consistent with the cyclical properties of labour productivity, real wages, hours, and consumption that have been observed in Canadian data over the last thirty years.

For questions 4.C-4.D, assume that households and firms do **not** have full information when they commit to a level of labour input. Assume that they know that z can only take on two values; $z_L = 10$ or $z_H = 20$. Assume that the household and the firm receive a signal (which can be bad or good) at the beginning of each quarter. If the signal is bad, the household and firm know that the probability that $z = 10$ equals .7. If the signal is good, the household and the firm know that the probability that $z = 10$ equals .4. The household and the firm commit to the level of labour input after they observe the signal but before they observe z.

4.C. (15 points) Suppose that the signal is good and actual $z = z_L$. Calculate the expected and actual levels of the following four variables: the real wage, labour input, output, and consumption.

4.D. (8 points) Demonstrate how this example economy can be used to generate business cycles in which hours are acyclical.