Christiansen
Economics 230H
Exam #3
April 19, 1994

Name _____

1. Suppose there are two goods, x_1 with price p_1 and x_2 with price p_2. The endowments of the two goods are given by ω_1 and ω_2. The utility function is $U(x_1, x_2)$. Both goods are normal.

a. (10 points) Suppose the individual is a net buyer of good 1. Explain how the net demand curve for good 1 is derived. (Note: Net demand is $x_1 - \omega_1$.) Using income and substitution effects, what can you say about the shape of this curve?

b. (10 points) If the individual is a net buyer of good 1 and p_1 decreases, might the consumer become a net seller? Can you say whether the consumer is better off or worse off? Explain.

2. Suppose there are two goods, consumption in year one C_1 and consumption in year two C_2. Endowments in the two years are $m_1 = 75$ and $m_2 = 120$, the interest rate is $r = 20\%$, and the utility function is $U(C_1, C_2) = C_1^{.8} C_2^{.2}$. (Alternatively, you can use the utility function $U(C_1, C_2) = .8 \log C_1 + .2 \log C_2$ if you can justify why it represents the same preferences.)

a. (15 points) Determine how much the consumer plans to spend in each year and how much he borrows or lends in the first year.

b. (5 points) Answer the following question without doing any further calculations: If there is a small increase in the interest rate, can you say for sure whether C_1 increases or decreases? Explain.

3. (20 points) In the chapter titled "Uncertainty" we generated a model of the demand for insurance. Using words, graphs, and calculus carefully set up the problem, and explain the factors that are relevant in deciding how much insurance to purchase.

4. a. (10 points) Give a careful argument as to why, in a simple two-period model (under conditions of certainty), the price of an asset should equal the present value of its cash flows.

b. (10 points) How would you expect the price of a depletable resource in a competitive market to change over time? Explain carefully.

5. a. (12 points) Suppose there are two risky assets and no risk-free asset. How are the risk and return of a portfolio related to the risk and return of the two assets? How is the efficient set determined? How would an individual choose an optimal portfolio? Explain.

b. (8 points) Suppose there are two risky assets and one risk-free asset. How is the efficient set determined? How would an individual choose an optimal portfolio. Explain.