NAME _____ Lovell, Microeconomics
Pledge: No Aid; No Violations Economics 271
Sign _____ October 13, 1997

Columbus Day Quiz

Please Note:
1. The quiz must end at 11:50 sharp.
2. I will not remain in the exam room; but I will drop by occasionally to answer clarifying questions. In an emergency, you can find me in my office, room 308 PAC.
3. If you need more space for your answers, write on the back or use paper available in the front of the room.
4. Please show your work so that you may receive partial credit if you make a numerical slip.

Part 1 (20 points): Here are eight definitions followed by fourteen key concepts. Please place in front of each definition the number of the most appropriate concept:

Definitions

a. _____ An allocation of resources where no one can be made better off without making someone else worse off.
b. _____ The percentage change in quantity demanded divided by the percentage change in price.
c. _____ The set of all points where no one can be made better off without making someone else worse off.
d. _____ The excess of the value to you of a commodity over what you pay for it.
e. _____ The function showing the minimum number of dollars required to achieve a specified level of utility, given prices.
f. _____ Function showing how attainable utility depends upon income and prices.
g. _____ Quantity demanded as a function of prices and utility
h. _____ $\partial q_i / \partial p_j \cdot p_j / q_i$

Key Concepts:

1. Cross price elasticity
2. Arc elasticity
3. Offer curve
4. Pareto optimum
5. Consumer surplus
6. Expenditure function
7. Contract curve
8. Slutsky equation
9. Compensated demand function
10. Expected utility
11. Income effect
12. Laspeyres price index
13. Budget constraint
14. Indirect utility function

Part II: (40 points)

The graph at the top of the next page shows the demand function of the citizens of Dogpatch for physician visits. The citizens wish they had a physician, but no physician will come to Dogpatch unless they guarantee an annual income of $100,000 plus $10 per patient visit.

a. A fee per visit of $_____ will maximize the income of a physician practicing in Dogpatch. It will yield total revenue of $_____

b. How much consumer surplus would be generated if physician visits were sold at the revenue-maximizing price?

c. Would you recommend that the town use tax revenue to attract a physician? Why? And if a physician does come, what fee per visit would you recommend? Explain.

Part III (40 Points): Richard is happy because he has a wonderful new $100,000 house plus other assets valued at $10,000. But he is also worried because there is a 1/100 chance that his $100,000 house will burn down! An insurance company offers to insure his house for $1,500. In addition to his house, he has $10,000 in other assets. Richard has the following utility (of wealth) function:

$$U = (W/1000)^{1/2}$$

a. If Richard's wealth were $100,000, he would enjoy _____ utiles of satisfaction

The following table contains calculations that may help you answer the questions that follow.

Event	Probability	Wealth	ProbXW	Utility	ProbXU
Fire	0.01	10,000	100	3.16	0.03
No Fire	0.99	110,000	108,900	10.49	10.38
Sum	1		109,000		10.41
		108,500		10.42	

b. If he doesn't buy the insurance, the expected value of Richard's wealth is _____ and his expected utility is _____. If he buys the insurance, Richard will have $108,500 with certainty and he will enjoy ____ utiles of satisfaction. Is it rational for Richard to buy the insurance? Explain.

c. Richard's neighbor Tom has an identical house. He also is thinking about buying insurance. Tom's utility function is

$$U = W/1000$$

Tom's marginal utility of wealth is _____. His utility function (does, does not) satisfy the Law of Diminishing Marginal Utility.

d. Will Tom buy the insurance? Explain carefully.

HONORS OPTION (Answer on the back of this page or on a separate sheet of paper.)

Warning: You will not receive any credit for this question unless you answer it correctly. No partial credit.

Mortimer has utility function $U_m = X_m^2 Y_m^2$ and Norton has utility function $U_n = X_n^{0.5} Y_n^{0.5}$. There are 15 units of X and 10 units of Y to distribute between these two consumers; i.e., $X_m + X_n = 15$ and $Y_m + Y_n = 10$. Derive the contract curve. Plot it on a graph.

Please go back and check over your work carefully before turning in your quiz.