Economics 3550
Intermediate Microeconomics
Professor Rous
Mid-Term Exam 2
November 11, 2002

Name________________________________

Clearly label all graphs for full credit and please write legibly; I cannot grade what I cannot read.

Number of points each question is worth in parentheses.

1. (6) If the % change in the quantity demanded of a good = -4% and the % change in income is 2%, then the income elasticity coefficient is -2.

   True/False: Economists routinely drop the '–` sign since it provides no useful information. Explain.

2. (6) Demand for goods that make up a very small portion of your budget are typically more ___________ than goods that take up a large portion of your budget. And normal goods are typically more ______________ than inferior goods.
   a. elastic ; elastic
   b. elastic ; inelastic
   c. inelastic ; elastic
   d. inelastic ; inelastic

3. (6) For a normal good, when the price of the good **increases**…
   a. the substitution effect is negative and the income effect is negative.
   b. the substitution effect is negative and the income effect is positive.
   c. the substitution effect is positive and the income effect is negative.
   d. the substitution effect is positive and the income effect is positive.

4.(6) Suppose an individual's demand for peanut butter is the following: Qd = 6-.4P and the current price of peanut butter is $2. What is the price elasticity?

5.(6) If the slope of a ray connecting the origin to a point (Point X) on a Total Product curve has the exact same slope as the Total Product curve at Point X, then:

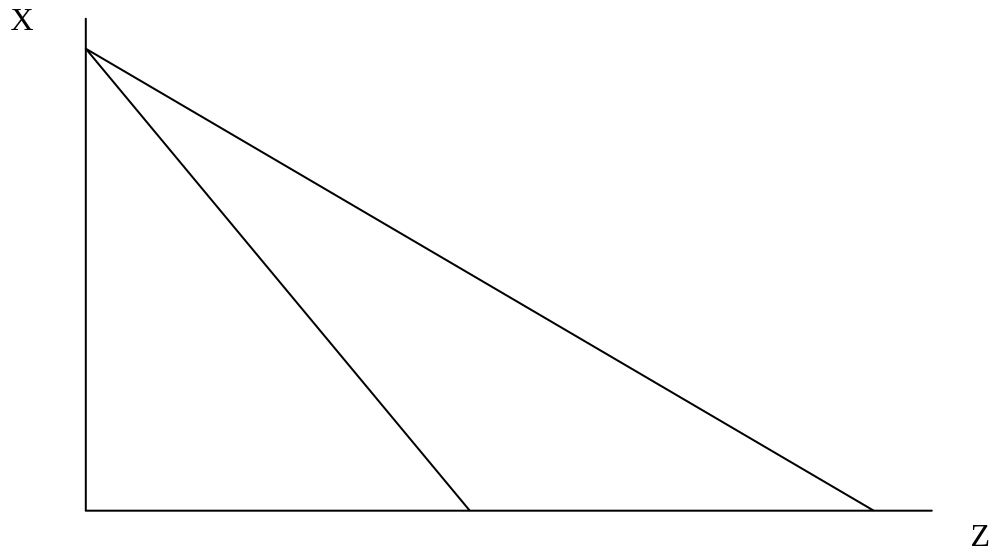
a. at Point X, MP_L is at its highest
b. at Point X, AP_L is at its highest.
c. at Point X, production is exhibiting increasing marginal returns.
d. at Point X, production is experiencing Constant Returns to Scale.

6. (6) If capital increases from 300 to 320, labor from 250 to 266.67, and output from 10,000 to 10,500, is production experiencing increasing, decreasing or constant returns to scale? How do you know?

7. (6) To maximize profit (or minimize loss), a perfectly competitive firm should shut down if:

a. profit < 0.
b. MR < ATC
c. profit > -FC
d. TR < VC

8.(12) **Verbally and graphically** explain how it is theoretically possible for demand curves to slope upwards. I have provided the following axes and budget constraints. (Hint: it will be easier to draw if you begin with a higher price and then let the price fall). On the graph, please label as much as possible (including the income and substitution effects).



9. (6) Farmer Sue has just received a notice that her farm's fire insurance premium is going to rise \$300 per year. Her economic profit each year is \$600. Will the new premium cause her to increase production, decrease production, or leave production unchanged? Briefly explain.

10. Assume the Ace Ball Bearing Company has the following daily short run production function when K = 900.:

$Q = 5(K*L)^{.5}$

a. (4) What is the firm's marginal product of labor function?

Assuming the wage rate is \$75 per day and the rental rate paid to capital is \$500:

b. (4) What is the firm's average variable cost function?

11. Bob’s Lawn Service (BLS) always mows 40 lawns per day using two inputs, capital, K, and labor, L. BLS rents capital at a price of $100 per day, and the workers get paid $75 per day. He has been producing on his expansion path with 15 units of capital and 20 laborers.

a.(6) Graph the current BLS isoquant and isocost curves below. What is the MRTS at the cost minimizing input combination? What is the total cost of production?

b. (6) Suppose the price of labor rises to $125. If the amount of K and L cannot change in the short run, Will MPL/PL be > or < MPK/PK? Use the above graph if you want to.

What is the total cost of production now?

c. (6) To minimize the cost of mowing 40 lawns, in the long run, should BLS use

- more K and less L
- more L and less K

d. (6) Explain how changing the quantity of each input used can lower the cost of mowing 40 lawns in the long run.

12. (8) President Bush announced new trade restrictions on foreign steel since it is cheaper than the steel made in the U.S and steel companies have been losing money for some time now (profit <0). The new restrictions are in the form of a tariff that raises the price of steel to the same level as U.S. steel. What would Hazlitt say about this tariff?