

The Last One!

Do not write your name on the assignment. Write your name only on the back of this sheet of paper and staple your answers on the front of this sheet of paper. Your assignment will be typed, except graphs can be drawn by hand and mathematical equations can be done by hand. Failure to follow these directions will cost you 1 point on the assignment and failure to type it will cost you 10 points.

For all questions, show all work.

1) (45 points) Suppose that a firm has a production function of $Q = K^{1/3}L^{1/3}$ and capital costs \$36/unit while labor costs \$49/unit. Derive the total cost function, the marginal cost function, and the average cost function for this firm.

2) (20 points) Suppose your utility function is $U = C_1^{1/2}C_2^{1/2}$. Derive the amount of consumption you will do in each period if your income in the two periods are $I_1=1000$ and $I_2=200$, and the interest rate is 20%. Show all work.

3A) (15 points) Using a generic utility function and a generic budget constraint, derive the two good equi-marginal principle.

B) (15 points) Repeat Part A for the inter-temporal budget constraint.