Name **ANSWER KEY - EXAM 3, FALL '03** score _____

Part II

1. The Pareto optimal outcome that is the result of voluntary exchange between two parties is determined by what factors?

**The Pareto Optimal solution occurs at a point of tangency of the indifference curves of the two individuals. (The $MRS_{xy}^{A} = MRS_{xy}^{B}$) There are an infinite number of solutions. The specific Pareto Optimal solution is determined by:**
**(1) the original endowment of goods or relative incomes of the two individuals,**
**(2) the preferences (the shapes of indifference curves or the MRS) of each of the individuals**
**(3) the information or ability to acquire information about the other person's preferences or willingness to trade**
**(4) the ability to negotiate a trade (this is related to item (3) above)**

2. If the production function were $Q = 5L^{.4}K^{.6}$, While we do not know the dollar amount of the average costs, what do we know about the average cost or cost per unit?

**The production function, $Q = 5L^{.4}K^{.6}$ , demonstrates constant returns to scale (.4+.6=1). This means that for any percentage increase in the inputs K and L, the output will increase by the same percentage. If the prices of the inputs remain constant, the output and total cost will also increase in the same proportion: therefore the average cost will be the same for every unit produced.**

3.Identify at least 2 ways that information about the production relationships, if not the production function could be known or learned.

**The decisions about how much of each input is to be used in the production process is dependent on information that may be acquired through; (1) intuition, (2) engineering data or methods, (3) statistical models based on time series or cross sectional data (multiple regression techniques), or (4) an interpretation of cost data.**

4. What would happen to the relative amounts of labour and capital that would be used if the government gave an investment tax credit (reduced the taxes of a firm on the basis of their expenditures for capital)?

**An investment tax credit would reduce the after tax price of capital relative to the price of labour. This would "rotate" the isocost out along the K axis. Since the minimum cost per units is where $MRS = P_L / P_K$ , and $P_K$ has decreased, the output should move to where the MRS is greater, i.e. use more capital and less labour for the same output. The Total Cost for that output will decrease.**