Name _____Mr. Key_____ December 18th, 1997

Econ 271: Final Examination – Post Mortem

I.1 Its easy to determine the elasticity of Albert's and Barbara's demand curves if you remember the shortcut graphical procedure, Problem Set #3, question 3; or with the formula, $\eta = - dq/dp\ p/q$; either way, $\eta_a = \eta_b = 2$ and $\eta_c = ½$.

2. Q = 50,000 and the stock is exhausted in 20 years. If the price of oil will remain constant it pays to pump today and put the funds in the bank where they will earn interest; if the price will rise by 30% it would not pay to earn 20% interest by selling oil today.

3. See Note 2 on problem set #5 and the last page of problem set 9, equation 5

4. The fundamental Slutzky equation (Nicholson page 157) partitions the change in demand into income and substitution effects.

5. The budget constraint is $C_{98} = Y_{98} + (1+r)(Y_{97} – C_{97})$, with $Y_1 = = Y_2 = 1000$.

II.1 Foreign sugar, at 50 cents, is priced out of the market by the tariff; the equilibrium price of sugar is 40 cents, output is 1000 and consumer surplus is (60-40)1000/2 = 10,000c.

If the tariff is repealed but farmers receive a 10 cent per pound subsidy, the supply curve shifts: i.e., $S(p_c)$ is 10c below the $S(p_s)$ curve; in the new equilibrium consumers will pay 30 cents (the world price), purchasing 1,500 pounds while farmers are held harmless because they can still produce 1000 pounds at 40c per pound, gross of the 10 c subsidy.; 500 are imported. Consumer surplus is 22,500. If the consumers pay more income tax to cover the 10,000c subsidy, they are still ahead. Thus the subsidy is better than the protective tariff.

II.2 The Medallion system means that the supply of taxis is fixed, so they earn a rent (return on a factor in fixed supply in excess of what is required) and the value of the Medallion of $200,000 is the capitalized (present discounted) value of that rent. If the Medallion system and current interest rates are expected to continue for ever more, then annual value (rent)/10% = Medallion value = $200,000; hence the annual rent is $20,000. The City of New York could realized this amount each year with an annual auction of 11,787 cab operating licenses. Alternatively, an annual fee of $10,000 would leave $10,000 rent which would capitalize to $100,000; i.e. the annual fee would cut the value of a Medallion in half. Increasing the number of Medallions would lead to more competition among cabs for passengers and it would slow travel, thereby reducing the return from driving a cab; hence it reduces the rent and the value of the Medallion. Note: It might be more realistic to assume that the holders of Medallion's expect them to rise in value, which would reduce the estimated rent, etc.)

II.3 The expected year-end value of the car is $3/4^{th}$ 20G + $1/4^{th}$ 0 = 15G;, the expected utility is ¾ U($100,000) + ¼ utility($80,000) = ¾ 5 + ¼ 4.903 = 4.97575, which is less than the U($95,000) = 4.978 enjoyed if he can buy insurance for 5,000, so he buys it. He wouldn't pay $7,500, because U($92,500 = 4.966 < 4.97575. His utility function is subject to diminishing marginal utility, which leads him to accept actuarial fair bets; therefore he is "risk adverse." Moral hazard is the tendency of those with insurance to be less careful (i.e. don't lock the car or use a club) while adverse selection is the tendency of the risk pool to be tilted against the insurance company because those who know they are more likely than average to suffer losses will be disproportionately likely to purchase insurance while those who know they are less likely to have their car stolen are less likely than average to buy coverage. Insurance companies try to resist this by looking at driving records and other evidence of "insurability", by rejecting applicants judged risky, charging higher premiums for those who park in the street, or by imposing large deductibles.

II.4 A dominant strategy is one that minimizes the most you can loose no matter what your opponent does. Player B has a dominant strategy ~ low capacity: Player A does not have a dominant strategy. If player A recognizes that Player B will recognize that the dominant strategy is don't invest, player A should chose low capacity and make $8 rather than only $6.

II.5 If income is C = I+w(24-h), then Jones' problem is to maximize $U = [I+w(24-h)]^{1/3} h^{2/3}$. $dU/dh = [I+w(24-h)]^{-2/3} (-wh^{2/3} /3) + [I+w(24-h)]^{1/3} 2h^{1/3}/3 = 0$. Hence h = 16 + I/3w; thus if I = 0 we have h = 8 for all w > 0 (everyone works an 8 hour day). If I > 0 (inheritance), one works less; if I < 0 (college debts) one works harder!

II.6 The key feature of monopsony is that the daily wage goes up when more workers are hired. With w = 5 + 0.1L, the total wage bill is $wL = 5L + 0.1L^2$(which goes in the profit function), and marginal labor cost is 5 + 0.2L. Unlike competitive labor markets, a minimum wage may induce a profit maximizing monopolist to hire more workers