國立中央大學104學年度碩士班考試入學試題

所別：產業經濟研究所碩士班 產業經濟組(一般生)　科目：個體經濟學　共 1 頁 第 1 頁

本科考試禁用計算器　　＊請在答案卷（卡）內作答

參考用

I. **State with reasons whether the following statements are true or false. No reasons, no points. (50%, 5% for each question.)**

1. A chain store like McDonalds or KFC locates in airports always has higher prices for their products because they have to pay higher rents.
2. In the long run industry equilibrium, no firm will be losing money.
3. Imposing a quantity tax on a monopolist will always cause the market price to increase by the amount of the tax.
4. Assume the demand is constant, the steeper the supply curve, the less the deadweight loss of a tax in the market.
5. Oligopolies generate an efficient level of output as the competitive markets do.
6. Given a set of initial endowment, a system of price will always allow the economy to achieve a Pareto efficient allocation.
7. If a consumer has a utility function $u(x_1, x_2) = x_1^2 x_2^{\frac{1}{2}}$, then the income she spends on x_1 will be two times of that on x_2.
8. Maximizing a firm's profit is always identical to maximizing the firm's stock market value.
9. Perfect substitutes are an example of homothetic preference.
10. Production with positive externality implies the amount of products is under-supplied.

II. Problems (50%)

1. In the labor market, it is quite often to observe a backward bending labor supply curve. Under the backward bending labor supply curve, what must be true about the demand for leisure? Should it be a normal good or an inferior good? (8%)

2. In a perfect market for two goods in which they can easily be bought and sold costlessly, when $P_1 = 4$ and $P_2 = 6$, a consumer buy $x_1 = 6$ and $x_2 = 5$, respectively.
   (a) When $P_1' = 6$ and $P_2' = 4$, a consumer buy $x_1' = 5$ and $x_2' = 4$. Is the consumer's behavior consistent with the model of utility maximizing behavior? (7%)
   (b) Will the consumer prefer consuming $x_1 = 3$ and $x_2 = 8$? (5%)
   (c) If the consumer has endowments for x_1 and x_2, say $E_{x1} = 3$ and $E_{x2} = 7$, respectively, will the consumer be better off if the price changes to $P_1 = 3$ and $P_2 = 8$. (5%)

3. Consider a duopoly market in which two firms produce a homogeneous product. The inverse demand function is given by $P = 100 - 0.5(y_1 + y_2)$, where y_1 and y_2 are the levels of the duopolists' outputs. Their cost functions are $C_1 = 5y_1$ and $C_2 = 0.5y_2^2$, respectively.
   (a) Determine the equilibrium values of price, output and profits if the dupolists collude. (12%)
   (b) Derive a price reaction function for each firm on the assumption that each maximizing its profit with respect to its own output. Determine equilibrium values of price, quantity, and profit for each firm. (13%)