國立中央大學105學年度碩士班考試入學試題

所別： 產業經濟研究所 碩士班 產經組(一般生)　　共2頁 第1頁

科目： 個體經濟學

本科考試禁用計算器

＊請在答案卷(卡)內作答

I. State with reasons whether the following statements are true, false, or uncertain. No reasons, no points. (48%, 6% for each question.)

1. When demand is unit elastic in terms of price, a percentage change in price is exactly offset by the same percentage change in quantity demanded, the net result being a constant total consumer expenditure.
2. The demand for durable goods tends to be more price elastic than the demand for non-durables.
3. In the Cobb-Douglas production function ($y = \alpha L^{\beta_1} K^{\beta_2}$), where y is output, L is labor and K is capital. If the firm takes the product price and input price as given, the total wage paid by the firm will equal to $\beta_1 \times 100\%$ of its revenues.
4. According to the theory of cost, specialization in the use of variable resources in the short-run results initially in increasing returns and increasing average and marginal costs.
5. In the long run equilibrium, every firm in the competitive industry earns zero profits. Thus, if the price falls, these firms will be unable to survive in business.
6. Suppose a consumer considers good A is important and he spends all his income on A. To this consumer, the price elasticity of the demand for A is 0.
7. An increase in the advertisement will definitely decrease the price elasticity of the demand for the product.
8. For a constant return-to-scale production function with only two inputs, i.e., $Q = f(L, K)$, f_{LK} must be positive.

注意：背面有試題

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II. Problem: (52%)

1. Mary consumes only scorn (S) and latte coffee (LC). She buys these items at the bakery store and always uses double servings of milk for each cup of coffee. Mary spends exactly half of her salary on the scorn and the other half on latte coffee. In this case, latte coffee can be treated as a composite commodity.

(a) What is the price of latte coeffee (P_{LC}) in terms of the prices of milk (P_m) and coffee (P_c)? (4%)

(b) Please derive the values of $\partial S/\partial P_{LC}$, $\partial S/\partial P_c$ and $\partial S/\partial P_m$? (6%)

2. Suppose a monopoly market has a demand function in which quantity demanded depends not only on market price (P) but also on the amount of research and development (say R, measured in dollars) the firm does. The specific form of this function is

$$Q = (20 - P)(1 + 0.1R - 0.01R^2)$$

The monopololy firm's cost function is given by

$$TC = 10Q + 15 + R$$

(a) Suppose $R = 0$, what are output and price will the profit-maximizing firms choose? (5%)

(b) Now assume the firm also choose the optimal level of R. In this situation, what output and prices will the firm choose? What will the level of R be? (12%)

(c) Will the firm make more profits via doing research and development? (5%)

3. The cost function is $C(w_1, w_2, y) = w_1^{\alpha_1} w_2^{\alpha_2} y$.

(a) What do we know about α_1 and α_2 in terms of their values? (6%)

(b) What is the production function? (14%)

注意:背面有試題