國立中山大學 108 學年度
碩士暨碩士專班招生考試試題

科目名稱：個體經濟學【經濟所碩士班】

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1. (15 pts) Wang is a college student with the utility function, $u(x,y) = xy$. Wang receives a monthly support of \$100, i.e. $m = 100$, from a scholarship which is the sole income source. The price vector of goods, (p_x, p_y), is $(2, 4)$ initially.

   a) (5 pts) What is the optimal consumption bundle for Wang?

   b) (10 pts) The price vector of goods increased recently, from $(2, 4)$ to $(2.5, 7.2)$. What is the minimum additional income subsidy required per month to maintain Wang's utility level as before?

2. (20 pts) An individual has the expected utility function $u(w) = \sqrt{w}$ where w is initial wealth. Let lottery L offer a payoff of 16 with probability ½ and a payoff of 9 with probability ½.

   a) (5 pts) What is the expected value of the lottery?

   b) (10 pts) If the individual owns only the lottery, what is the minimum price, $\underline{p}$, that he would sell it for?

   c) (5 pts) If he does not own the lottery but $w = 100$ initially, what is the maximum price, $\bar{p}$, he would be willing to pay for it? (*Hint*: In this case, simply write down the equation involving $\bar{p}$.)

3. (25 pts) The production of x creates negative externalities for a community, which cost $e(x)$. The private cost function in the production of x is $c_x(x)$ with $c'_x(x) > 0$. Denote the other production activity as y, which causes no externalities. The cost function in the production of y is $c_y(y)$. Assume that both x and y are sold at competitive prices, p_x and p_y.

   a) (10 pts) Write down the condition of Pareto efficiency.

   b) (10 pts) How does market mechanism solve this issue in terms of adjustments in property rights?

   c) (5 pts) Use this example to discuss the essence of the Coase theorem.

4. (10 pts) Find the equilibrium of the extensive-form game below.
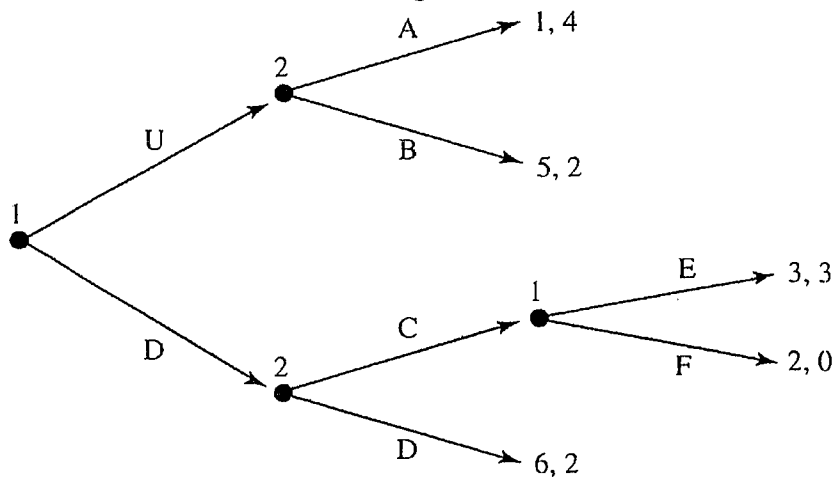

Figure 1

5. (10 pts) Explain the following terms and give an example for each: (2 pts for each) transaction cost, opportunity cost, sunk cost, reservation price, and shadow price.

6. (10 pts) A firm prefers price with fluctuations to constant price. True or false, and comment please. (For Questions 6 and 7 below, answers without comments will score zero.)

7. (10 pts) Second-degree Price Discrimination is an application of hidden action or moral hazard issues. True or false, and comment please.