

編號: E 415 系所: 電信管理研究所甲組

科目: 經濟學

本試題是否可以使用計算機:  可使用,  不可使用 (請命題老師勾選)

填寫題 (每格 5 分, 共 20 格)

1.

The Wave Energy Technology (WET) company has a monopoly on the production of vibratory waterbeds. Demand for these beds is relatively inelastic at a price of \$1,000 per bed, 25,000 will be sold, whereas at a price of \$600, 30,000 will be sold. The only costs associated with waterbed production are the initial costs of building a plant. WET has already invested in a plant capable of producing up to 25,000 beds, and this sunk cost is irrelevant to its pricing decisions.

- (a) Suppose a would-be entrant to this industry could always be assured of half the market but would have to invest \$10 million in a plant. Construct the payoff matrix for WET's strategies ( $P = \$1,000$  or  $P = \$600$ ) against the entrant's strategies (enter, don't enter) \_\_\_\_\_ . Does this game have a Nash equilibrium (\_\_\_\_\_, \_\_\_\_\_)?
- (b) Suppose WET could invest \$5 million in enlarging its existing plant to produce 40,000 beds. Would this strategy be a profitable way to deter entry by its rival (YES, NO)?

2.

Suppose demand for labor is given by  $L = -50w + 450$  and supply is given by  $L = 100w$ , where  $L$  represents the number of people employed and  $w$  is the real wage rate per hour.

- (a) What will be the equilibrium levels for  $w$  and  $L$  in this market  
 $w =$  \_\_\_\_\_,  $L =$  \_\_\_\_\_?
- (b) Suppose the government wish to raise the equilibrium wage to \$4 per hour by offering a subsidy to employers for each per person hired. How much will this subsidy have to be and what will the new equilibrium level of employment be  $s =$  \_\_\_\_\_,  $L =$  \_\_\_\_\_? How much total subsidy will be paid  $S =$  \_\_\_\_\_?
- (c) Suppose instead that the government declared a minimum wage of \$4 per hour. How much unemployment would there be  $\hat{L} =$  \_\_\_\_\_?

3.

Consider the indirect utility function given by

$$v(p_1, p_2, I) = \frac{I}{p_1 + p_2}$$

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(a) What are the demand functions  $x_1(p_1, p_2, I) =$  \_\_\_\_\_,  
 $x_2(p_1, p_2, I) =$  \_\_\_\_\_ ?

(b) Find the expenditure function  $E(p_1, p_2, U_0) =$  \_\_\_\_\_.

(c) Derive the direct utility function  $U(x_1, x_2) =$  \_\_\_\_\_.

4.

A consumer purchases two goods with a utility function  $U(x_1, x_2) = X_1^{0.5} X_2^{0.5}$ . The prices and income are  $p_1 = 1$ ,  $p_2 = 1$  and  $I = 10$ , respectively. Suppose that the price of good 1 increases to  $p'_1 = 2$ . Calculate the following three impacts on consumer's welfare due to this price change.

(a) What is the change in Consumer Surplus  $\Delta CS =$  \_\_\_\_\_ ?

(b) Compensated Variation is defined by "the quantity of income needed to be changed under the new prices, in order to maintain the original utility level before the prices change". What is  $CV =$  \_\_\_\_\_ ?

(c) Equivalence Variation is defined by "the quantity of income needed to be changed before the prices change, in order to have the utility level under the new prices". What is  $EV =$  \_\_\_\_\_ ?

5.

Consider an individual who lives for two periods, earns a nominal income of \$1,000 in each period, and has zero initial and terminal assets. The nominal interest rate,  $R$ , on dollar loans is 15%, and the expected rate of inflation,  $\pi^e$ , between the two periods is 10%. Assume that the price level in the first period is 1.

(a) What is the real value of period 1 income \_\_\_\_\_ goods?

(b) What is the maximum amount of dollars that could be borrowed in period 1 \$ \_\_\_\_\_? Find the real value of this amount, and add it to the real value of period 1 income to see the maximum amount of (real) consumption possible in period 1 \_\_\_\_\_ goods.

(c) What are the price level in period 2 and the real value of period 2 income \$ \_\_\_\_\_, \_\_\_\_\_ goods.

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- (d) What is the maximum amount of dollars that can be obtained in period 2 by saving in period 1 \$ \_\_\_\_\_? Find the real value (in period 2) of this amount, and add it to the real value of period 2 income to see the maximum amount of (real) consumption possible in period 2 \_\_\_\_\_ goods.