國立中山大學104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】　　題號：403002

※本科目依簡章規定「不可以」使用計算機(問答申論題)　　

1. (10 pts) Consider a dynamic game as described by Figure 1 below. Find the subgame perfect Nash equilibrium of the game.

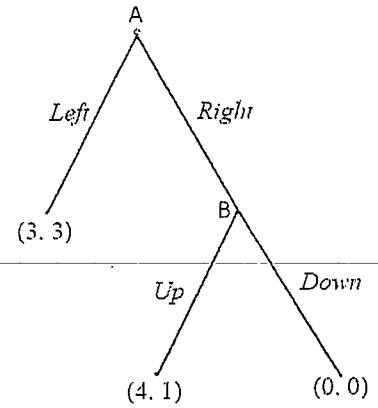

Figure 1

2. (10 pts) Continuing question 1, suppose that player B is indeed inequality-averse. Draw a new game tree and find the equilibrium or equilibria, if the payoff profiles shown in Figure 1 do not take into account player B's perception of inequality?

3. (10 pts) The expected utility function of A can be expressed as $U_A(W) = \sqrt{W}$ where W is wealth. However, A is facing with an uncertain situation now. With probability π that A's wealth will double, $\pi < 0.5$. But A might lose all her wealth with probability $1 - \pi$. What is the amount of risk premium A would like to pay to avoid facing this uncertainty?

4. (10 pts) Continuing question 3, consider B whom owns the same amount of initial wealth as A, but has a different expected utility function, $U_B(W) = \ln W$. Will B pay for less than A does in order to avoid facing the same uncertainty? (Use the Arrow-Pratt absolute measure to show your result.)

5. John, Roger, and Smith are the only three voters in a committee. There is an issue on the ballot, which will result in a decrease of John's income by \$60000 but increases of Roger and Smith's incomes by \$30000 for each, if it is passed. The issue fails if the vote is tied. However, each will cost \$10000 to vote.
   1) (5 pts) Assume that in equilibrium John votes with probability α, and Roger and Smith each vote with the same probability β. What is the probability that the issue will pass, as a function of α and β, if Roger and Smith make their own decisions independently?
   2) (5 pts) What are the possible outcomes of voting, if voters vote strategically?

6. When discussing the properties of consumer preferences, we make three assumptions: completeness, transitivity and monotonicity (more is better). Please identify which assumption is violated with each of the following indifference curves.
   (a) (3 pts) An upward sloping indifference curve
   (b) (3 pts) An indifference curve crossing another one.
   (c) (3 pts) A thick indifference curve
   (d) (3 pts) A downward sloping indifference curve but concave to the origin
   (e) (3 pts) This person does not have an indifference curve

7. In the previous question, three assumptions are made on consumer preferences.

(a) (3 pts) If an economy has only inferior goods, which assumption is violated so that such a circumstance is not possible?

(b) (3 pts) Is the slope of Engel curve positive or negative for an inferior good?

(c) (3 pts) Can a good be both inferior and normal? Please explain.

(d) (3 pts) "When the price of an inferior good decreases, the quantity demanded of this good definitely decreases." Is this preceding statement true or false? Explain.

(e) (3 pts) "When the price of a normal good decreases, the quantity demanded of this good definitely increases." Is this preceding statement true or false? Explain.

8. (10 pts) If a production function is homogeneous degree of γ, we have $f(xL, xK) = x^{\gamma} f(L, K)$ where L stands for labor and K stands for capital. Please show that the marginal product of labor and marginal product of capital are homogeneous degree γ-1.

9. (10 pts) Consider a two-person exchange economy. Please use an Edgeworth box to show the contract curve. In addition, also in an Edgeworth box, show what a competitive equilibrium is.