

# 淡江大學 97 學年度碩士班招生考試試題

系別：產業經濟學系

科目：產業經濟學

准帶項目請打「V」	
	簡單型計算機

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1. (10%) Please find all of the Nash equilibrium (only pure strategy) in the following game.

		Player 2	
		O	B
Player 1	O	1, 2	0, 0
	B	0, 0	2, 1

2. (40%) Consider a modification of Prisoner's Dilemma depicted in the following figure.
- 1.1 If both prisoners play the strictly dominant strategy, what strategy would they choose?
  - 1.2 If both prisoners do not play the strictly dominated strategy, what strategy would they choose?
  - 1.3 If both prisoners play the strategy of iterated deletion of strictly dominated strategy, what strategy would they choose?
  - 1.4 If both prisoners play the best-response strategy, what strategy would they choose?
  - 1.5 What are all the Nash equilibria (pure and mixed) of this game?

		Prisoner 2	
		Deny	Confess
Prisoner 1	Deny	0, -2	-10, -1
	Confess	-1, -10	-5, -5

3. (30%) Two airlines, China Airlines and Eva Air, compete against each other on the route between Taiwan and Japan. Each day they must decide on the number of discount seats to offer on this route. The number of seats offered by China Airlines is  $S_C$  and the number offered by Eva Air is  $S_E$ . The market-determined discount price,  $P$ , depends on the total number of seats offered by both airlines,  $S_C + S_E$  according to the equation:  $P = 200 - 0.1(S_C + S_E)$ . The marginal cost of flying a passenger on this route equals 100 for China Airlines and 50 for Eva Air. Determine:
- 3.1 The profit function of each airline
  - 3.2 The best response function of each airline
  - 3.3 The Nash equilibrium.
4. (20%) Consider the Cournot duopoly model where two firms, 1 and 2, simultaneously choose the quantities they will sell on the market,  $q_1$  and  $q_2$ . The price each receives for each unit given these quantities is  $P(q_1, q_2) = a - b(q_1 + q_2)$ . Suppose that each firm has probability  $\mu$  of having unit costs of  $c_L$  and  $(1 - \mu)$  of having unit costs of  $c_H$ , where  $c_H > c_L$ . Solve for the Bayesian Nash equilibrium.