

國立臺灣科技大學

九十四學年度碩士班招生考試試題

系所組別：企業管理系碩士班甲組、企業管理系碩士班乙組
科目：經濟學

總分 100 分

1. A new product is being introduced in competition with another firm. Having the product ready for production in t months will result in net revenue $144 - t^2$ if the introduction time t is between 0 and 12, but will generate no revenue at all if t is greater than 12. Three departments must be ready before production can begin, and getting ready is a costly matter. Department 1 can be ready in t months for a cost of $3(12-t)$, department 2 for a cost of $4(12-t)$, and department 3 for $5(12-t)$. Until all three departments are ready, production cannot begin. (1) What is the optimal date at which to introduce the new product, that is, the time that maximizes the net revenue after introduction minus the cost of readying the three departments? (2) What will be the maximum profit of the firm? (3) What will the firm's profit be if the project is mistakenly hurried and all three departments are asked to deliver one month earlier than the optimal date? (4) What will the firm's profit be if department 1 and 3 are asked to be ready at the optimal time, and department 2 is asked to be one month earlier than the others? (5) What is the new optimal date if the costs of department 1 and 3 stay the same, but the cost of department 2 is independent of time? (25%)
2. Suppose that there are two firms, firm A and B, that are considering making a joint investment in R&D. The total payoff from the project is $200(V_A + V_B)^{1/2}$, where V_A and V_B are the values of the two investments. The two firms expect to share the payoff equally while each absorbs the cost V_A and V_B of its investment. (1) What is the total investment if the payoff of this joint R&D is maximized? How much total payoff is created in this way? (10%) (2) Suppose now that the firm cannot enforce a contract specifying the levels of investments for each, because they cannot observe the real value of the investment that are made. Show that if firm A expects firm B to invest V_B , it can do no better than to invest $2,500 - V_B$. How much, then, will be invested in total? How much total payoff is created? (15%)

177



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- (1) 經濟學家曾經估計美國廠商之廣告的平均需求彈性值約僅 0.003，此一數據是否反映美國廠商之廣告支出費用的確偏高呢？(10分)
- (2) 若進一步對香菸課徵高額稅收，請問此舉是否能有效降低台灣青少年抽煙之人數？(10分)

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- (1) 請配合適當圖形解釋 (a) demand-pull inflation; (b) cost-push inflation; 與 (c) profit-push inflation. (10分)
- (2) 請說明 93 年台灣總體經濟之具體表現實況：(20分)
 - a. 經濟成長率：_____；
 - b. 人均實質國民所得（美元）：_____；
 - c. 消費者物價指數年增率：_____；
 - d. 就業人數（93 年底）：_____；
 - e. 失業率（93 年底）：_____；
 - f. 貨幣總供給 M1B（93 年底）（千萬美元）：_____；
 - g. 重貼現率（93 年底）：_____；
 - h. 匯率（新台幣/美元）（93 年底）：_____；
 - i. 商品出口總金額（百萬美元）：_____；
 - j. 商品進口總金額（百萬美元）：_____；

* 答案務必寫於答案卷上。
 僅寫於試題上者不予計分。

