

國立臺北科技大學九十九學年度碩士班招生考試

系所組別：4410 服務與科技管理研究所甲組

第三節 經濟學 試題

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注意事項：

1. 本試題共 7 題，配分共 100 分。
2. 請標明大題、子題編號作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

1. (10%) Toyota and Ford are considering expanding into the Vietnamese automobile market. Devise a simple prisoners' dilemma game to demonstrate the strategic considerations that are relevant to this decision.

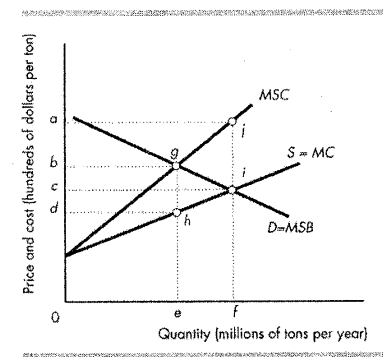
2. (15%) The table below shows sales of the firms in the broomstick industry:

Firm	Sales (thousands of galleons)
Nimbus, Inc	57.5
Cleansweep, Inc	33.3
Bogey, Inc	12.6
Muggle Handles, Inc	9.9
Salazar's Sticks	11.1
Draco Dormiens, Inc	8.6
Avada's Brrom	7.8

- a) (5%) Calculate the four-firm concentration ratio.
 - b) (5%) Calculate the Herfindahl-Hirschman Index.
 - c) (5%) Based on your calculations, what is the structure of the industry?
3. (15%) Duopoly quantity-setting firms face the market demand $p = 150 - q_1 - q_2$. Each firm has a marginal cost of \$60 per unit.
- a) (7%) What is the Cournot equilibrium?
 - b) (8%) What is the Stackelberg equilibrium when Firm 1 moves first?

4. (10%) Suppose that identical duopoly firms have constant marginal costs of \$10 per unit. Firm 1 faces a demand function of $q_1 = 100 - 2p_1 + p_2$, where q_1 is Firm 1's output, p_1 is Firm 1's price, and p_2 is Firm 2's price. Similarly, the demand Firm 2 faces is $q_2 = 100 - 2p_2 + p_1$. Solve for the Bertrand equilibrium.

5. (15%) The figure below shows the market for steel, the production of which creates pollution:



- a) (3%) What point represents the equilibrium price and what point represents the equilibrium quantity in an unregulated, competitive market?
 - b) (3%) What area represents the deadweight loss of the unregulated, competitive market outcome?
 - c) (3%) What point represents the efficient quantity?
 - d) (3%) If the output level in part (c) was achieved through the use of a government imposed tax, what price would consumers pay? What price would the producers receive? What distance represents the amount of the tax?
 - e) (3%) If government successfully uses marketable permits to eliminate the external cost, what point represents how much output would be produced?
6. (20%) (5%) Please draw a short-run Phillips curve and a long-run Phillips curve if the expected inflation rate is 4 percent and the natural unemployment rate is 6 percent. Explain how the two change in the short run if:
- a) (5%) slower growth in aggregate demand causes a recession.
 - b) (5%) the inflation rate increases.
 - c) (5%) the natural unemployment rate increases.

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7. (15%) Desert Kingdom produces only dates and camel rides. The base year is 2008, and the tables give the quantities produced and the prices in 2008 and 2009.

Quantities	2008	2009
Dates	1,000 pounds	1,100 pounds
Camel rides	50 rides	60 rides

Prices	2008	2009
Dates	\$1 per pound	\$2 per pound
Camel rides	\$100 per ride	\$120 per ride

- a) (7%) Calculate Desert Kingdom's Nominal GDP and real GDP in 2008 and 2009.
- b) (8%) Calculate Desert Kingdom's Real GDP in 2009 in terms of the base-year prices.