

考試科目	個體經濟學 21611	所別	經濟學系	考試時間	2月28日(星期日)第一節
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1. (每小題十五分，共計三十分)

- a. 請分別利用數學以及等產量曲線圖，說明邊際成本一定是正值。
- b. 市場需求函數為 $P = 50 - Q$ ，其中 P 為價格而 Q 則為市場總產量。市場上共有三家廠商，各家廠商的總成本函數皆為 $C(q) = 10$ ，其中 q 為各家廠商的產量。假設廠商之間進行的是同時出招的價格競爭 (Bertrand Competition)。試找出所有的 Nash 均衡解。

2. (二十分) 假設 A 的效用函數為 $U(y, n) = [\min(2c, n)]^{0.5}$ ，其中 c 為消費， n 為每日休閒時間。

- a. 每日休閒時間 (n) 是否為正常財？
- b. A 目前的時薪為基本工資 (w_1)。如果基本工資漲一倍到 $2w_1$ 時，試求此工資調整對勞動時數造成的工資效果、替代效果、以及所得效果。

3. (20 points in total)

Assume that consumer preferences are described by a Cobb-Douglas utility function in the following form, with two goods being consumed—apples (QA) and oranges (QO):

$$U = QA^\alpha QO^{1-\alpha}$$

where the parameter α is the budget share for apples, and $(1-\alpha)$ is the budget share for oranges.

- (a) (2 points) Derive the utility-maximizing demand functions for each commodity, for any expenditure level, Y , and for any prices of apples (PA) and oranges (PO).
- (b) (2 points) Assume that apples and oranges each account for a fifty percent budget share, expenditure in the base period is one hundred, and the initial price of apples is four and of oranges is two. Calculate the utility maximizing quantities of apples and oranges.

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- (c) (6 points) Assume that the economic shock has caused the apple prices to fall to two but that the orange price and total expenditure remain unchanged. Solve for the new, utility-maximizing quantities of apples and oranges.
- (d) (10 points) Calculate in monetary terms the impact on consumer welfare due to the abovementioned price change.
4. (30 points in total)
- (a) (10 points) Set up a two-good (both are normal goods) case to illustrate the welfare change induced by a sales tax partially imposed on one of the two goods. Explain how you measure quantitatively (1) the tax payment, (2) the change in the consumer welfare in this case, and (3) the excess burden thus resulted.
- (b) (15 points) Equivalent variation (EV), change in consumer surplus (ΔCS), compensating variation (CV) are broadly accepted by economists for measuring the impact on welfare due to exogenous price changes, e.g. induced by a unit tax. First, explain the concept behind these three measures of welfare change and point out the difference between them. Second, plot the uncompensated and compensated demand curves to illustrate for the abovementioned measures (whichever is applicable) in the case of a unit tax imposed on the consumption of a certain commodity. Be sure to indicate the tax payment by the consumer and the excess burden of this unit tax.
- (c) (5 points) For locating the excess burden of a tax, economists tend to look at only the substitution effect, but not the income effect. Justify it.

備註

- 一、作答於試題上者，不予計分。
二、試題請隨卷繳交。