國立政治大學 109 學年度 碩士暨碩士在職專班 招生考試試題

考試科目	個體經濟學	系所別	經濟學系	考試時間	2月7日（五） 第二節

1.(十分)下列哪些函數不可能是追求支出極小化之下個別消費者的支出函數(E)？並說明原因。其中 P_X 和 P_Y 為商品的價格，M 為所得，U 為效用水準。

a. $E = P_X P_Y U$

b. $E = P_X P_Y M$

c. $E = \frac{P_X^2}{P_Y} U$

d. $E = \frac{P_X^2}{P_Y} M$

e. $E = \sqrt{\frac{P_X P_Y}{U}}$

f. $E = \sqrt{\frac{P_X P_Y}{M}}$

2.(四十分, 每小題十分) 請使用文字、圖形以及數學解釋說明下列敘述為『真』、『偽』、或是『不確定』。

a. 當消費者的偏好滿足嚴格凸性的假設時，其無異曲線必定是負斜率。

b. 補償變量(compensating variation)等於均等變量(equivalent variation)的充份必要條件為替代效果等於所得效果。

c. 如果生產函數具有遞增規模報酬(increasing returns to scale)的特性時，邊際成本有可能是負數。

d. 成本函數對要素價格的一階偏微分，一定是正數。

3. [20 points] (Labor Supply) Steve maximizes his utility over leisure (N) and consumption (C) given the following utility function:

$$U(C, N) = \ln C + \ln N,$$

subject to the following constraints:

$$H = 1 - N \text{ and}$$

$$C = wH + Y^*,$$

where H is the hours of work per day (divided by 24 hours), w is the wage rate, and Y^* is his unearned income.

a. [5 points] Discuss the effects of an increase in Y^* on labor supply and consumption.

b. [5 points] Discuss the effects of an increase in w on labor supply and consumption.

c. [5 points] Suppose the government imposes a tax rate, τ, on his **wage income**, discuss the effect of an increase in τ on his labor supply and consumption.

d. [5 points] Suppose the government also imposes a tax rate, θ, on his **consumption**, discuss the effect of an increase in θ on his labor supply and consumption.

備註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。

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4. [15 points] (Labor Demand) Sam wanted to open a caramel apple business and knows that the going price for caramel apples is $5. After studying the production process, he determined that the productivity of workers was given by the following table (blank columns are included for your convenience). Please be sure the logic for your answers is clear.

Workers	Total apples/hour		
0	0		
1	6		
2	11		
3	15		
4	18		
5	20		

a. [5 points] Assume that Sam is operating in a perfectly competitive labor market and the going wage for caramel apple work is **$13/hour**. How many workers should Sam hire for his business? Why?

b. [10 points] Now assume that Sam is operating in a labor market where he faces an upward-sloping labor supply curve. The labor supply schedule is provided below (with blank columns for your convenience).

Suppose Sam is a **non-discriminating monopsonist**, how many workers should Sam hire for his business? What wage should he pay? Why?

Workers	Wage		
0			
1	10		
2	11		
3	12		
4	13		
5	14		

5. [15 points] (Minimum Wage) Use graphical analysis to explain why it is possible that placing a minimum wage on a **monopsonist** could increase employment.