

考 試 科 目	個體經濟學	所 別	經濟學系	考試時間	3 月 6 日(六) 第二節
			161		

1. (20 分) A decision maker has to allocate his initial wealth  $w_0 > 0$  between two assets. One asset is risk free and pays a certain return of 1 for every dollar invested. The other is risky; its return per dollar invested is given by the random variable  $r$  which takes on two values, i.e. either values  $r^H$  or  $r^L$ . Let  $a \in [0, 1]$  be the fraction of wealth invested in the risky asset. So future wealth is  $w = (1 - a)w_0 + aw_0r$ . Consider the decision maker is a von-Neumann Morgenstern expected utility maximizer with payoff function for future wealth  $U(w)$ . Assume that  $u'(w) > 0$  and  $u''(w) < 0$  for all  $w$ . What kind of condition(s) for the expected return of the risky asset do we need, i.e.  $E(r)$ , in order to obtain a positive value of the optimal choice of  $a$ ?
2. (30 分) An individual has the utility function  $U(h, c) = hc$ . ( $h$ : leisure,  $c$ : consumption;  $P_c = \$1$ ). There are 24 hours in a day, and  $w = \$1$  is the market wage rate per hour. Non-earned income is \$10. Please compute the compensating variation (CV) and equivalent variation (EV) to the individual for each of the following government policies.
- (1) The government decides to impose an income tax on both the wage income and the non-earned income. The income tax rate is 50%. (10 分)
  - (2) The government decides to impose a minimum hourly wage as \$2 per hour only for the first 3 hours worked. (10 分)
  - (3) The government decides to impose a minimum work-hour requirement as 8 hours per day, i.e. the individual has to work at least 8 hours a day. (10 分)
3. (25 分) 假設市場上有多家同質廠商，每一家廠商的成本函數如下：

$$TC(q) = 5q$$

其中  $q$  為代表性廠商的產量。令市場的需求函數如下：

$$P = 1005 - Q$$

其中  $Q$  為市場需求量。請回答以下問題：

- (1) 在完全競爭市場下，試問市場的長期均衡價格、數量，消費者剩餘各為何？並請畫圖來表示所求出的結果。(8 分)
- (2) 若所有的廠商聯合起來，形成一家獨佔廠商，試問該獨佔廠商的利潤為何？請求出獨佔市場的形成所造成的社會福利損失？並請畫圖來表示所求出的結果。(8 分)

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(3) 何謂 Lerner index? 根據以上的資料, 請在完全競爭市場以及獨佔市場下, 分別求出 Lerner index 的數值。(9分)

4. (25分) 若市場中有  $n$  家同質的廠商, 每一家廠商的成本函數如下:

$$TC(q) = F + cq + dq^2$$

其中  $q$  為代表性廠商的產量,  $F$  為廠商的固定成本, 而  $c$  與  $d$  均為正值的係數。請回答以下問題:

- (1) 何謂 minimum efficient scale (MES)? 試問代表性廠商之 MES 的值為何? (8分)
- (2) 若廠商在市場中從事 Cournot 競爭, 在短期均衡下, 試問代表性廠商之產量為何? 市場的價格為何? (8分)
- (3) 若廠商可以進出市場, 在長期均衡下, 試問市場中的廠商家數為何? (9分)