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國立高雄大學九十五學年度轉學招生考試試題

科目：經濟學原理　　系所：應用經濟學系二年級　　□可 ■否 使用計算機

考試時間：90 分鐘　　本科原始成績：滿分 100 分

1. (12 points) Two oligopoly firms (A and B) are competing with personal computer market. Each of them can decide to produce high quantity or low quantity. When both firms produce high quantity, each of them earns 2 millions. When both firms produce low quantity, each of them earns 3 millions. When one firm produces high quantity and the other produces low quantity, then the one produces high quantity earns 5 million; while the one produces low quantity earns 1 million. Please answer the following questions:
   (1) Please draw the payoff matrix of the game.
   (2) Does market equilibrium exist in this game? If yes, what is each firm's associated strategy and payoff.

2. (12 points) Assume there is a single firm producing cigarettes, and the marginal cost of producing cigarettes is c where c is a constant. Suppose the government imposes a tax rate t on each pack of cigarettes. If the demand curve for cigarettes is linear with $Q = a - P$ where Q is the output and P is the price of the cigarette market, and a, c, t are all constant with a>c>t. Please find the equilibrium before and after the tax policy. Who bears the tax burden and by how much?

3. (16 points) 為了衝緩全球化對稻米的影響，政府採取了許多政策，其中之一即是稻米保證收購價格政策。假設稻米是一完全競爭市場，且市場上每一個農夫的生產技術都一樣，請回答下列問題：
   (1) 在未有保證收購價格的政策之前，市場一公斤的稻米價格是 20 元，但此價格對個別農夫而言，一公斤得要虧損 2 元。請以圖形標示出稻米市場與個別農夫的虧損。(註：假設沒有農夫離開市場)
   (2) 今假設政府採取保證收購價格，一公斤稻米以 23 元收購，個別農夫短期是否因此而受益？個別農夫的生產行為如何影響市場的供需？請以圖示並解析之。
   (3) 在此政策下，政府得要支付多少補貼予以個別農民？請以圖形示之。

4. (10 points) 請問雇主雇用勞工的法則為何？請證明在此法則下，雇主乃在追求其利潤之極大。

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5. (10 points) The transactions in Ecoland last year were on Table 1. Please calculate Ecoland's GDP by using the expenditure approach and the income approach.

Item	Dollars	unit: thousand
Wage paid to labor	800	
Consumption expenditure	600	
Taxes	250	
Transfer payments	50	
Profits	200	
Investment	250	
Government purchases	200	
Exports	300	
Saving	300	
Imports	250	

6. (14 points) What is fiscal policy? Please apply the AD/AS model to explain the effect of fiscal policy on real GDP and price.

7. (14 points) What is monetary policy? Please apply the AD/AS model to explain the effect of fiscal policy on real GDP and price.

8. (12 points) You are given the following information about the economy of Antarctica: Autonomous consumption expenditure is $1 billion, and the marginal propensity to consume is 0.9. Investment is 5 billion, government purchases of goods and services are $4 billion, and the income tax rate is 0.2. Please answer the following questions:
   (1) What is the equation that describes the aggregate expenditure curve?
   (2) Calculate equilibrium expenditure.
   (3) If investment falls to $3 billion, what is the change in equilibrium expenditure and what is the size of the multiplier?

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國立高雄大學九十五學年度轉學招生考試試題

科目：微積分　　系所：應用經濟學系二年級　　□可 ■否 使用計算機

考試時間：90 分鐘　　本科原始成績：滿分 100 分

1. (15%) Evaluate the following functions.

   (a) $\int_{1}^{\infty}(1/x)dx$

   (b) $\int_{-1}^{1}(1/x^3)dx$

   (c) $\int_{1}^{\infty}(1/x^2)dx$.

2. (10%) Find the partial derivatives for the following function.

   (a) $f(u,v)=(3u-2v)/(u^2+3v)$

   (b) $g(x,y)=(x+2)^2(y+3)^3$

3. (20%) Find the total derivative of the following function.

   (a) $y=f(x,w)$, where $x=g(w)$

   (b) $y=f(c,s)$, where $s=g(c)$

   (b) $y=f(x_1,x_2,w)$, where $x_1=g(w)$ and $x_2=h(w)$

   (c) $y=f(K,L,u,v)$, where $K=g(u,v)$ and $L=h(u,v)$

4. (10%) Find the derivative of the following functions.

   (a) $y=t^3\ln t^2$

   (b) $y=x^a e^{kx-c}$

5. (10%) Find dz and dz^2 of the following functions.

   (a) $z=f(x,y)$

   (b) $z=f(x,y,w)$

6. (10%) Check $z=x^2+y^2$ for convexity or concavity by the derivative conditions.

7. (10%) Find the extremes value(s) of $z=2x^2+xy+4y^2+xw+w^2+2$.

8. (15%) Using the Lagrange-multiplier method and find the extremum of $z=x^2+y^2$ subject to $x+4y=2$.

End of the questions