

考試科目	經濟學原理	類別	經濟系	考試時間	2月1日 上午	第 1 節
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一、請回答下列問題： (24%)

- (1) 避免新台幣繼續貶值，中央銀行在外匯市場上應採取什麼樣的干預措施？此種外匯干預的措施將導致貨幣供給和利率如何變動？請以圖形輔助分析之。 (6%)
- (2) 為什麼卡特爾 (Cartel) 組織 (例如 OPEC) 的成員通常都有擴充產量的傾向？為什麼卡特爾組織很容易趨向崩潰？請以圖形輔助分析之。 (6%)
- (3) 政府放寬資本管制以後，民眾可以將資金自由匯出國外，則央行放鬆銀根的貨幣乘數效果將如何變動？變大或變小？為什麼？ (6%)
- (4) 什麼樣的所得稅制可以使經濟體系的景氣波動變小？為什麼？ (6%)

二、國內水泥業隨著環保意識的增加，勞資關係的改變，其生產成本漸增，但在國內重大公共工程陸續開工的情形下，水泥需求將大為增加，請以圖形輔助分析下列問題： (16%)

- (1) 請根據以上所提供的訊息，預測未來水泥價格可能的走勢與數量的變動。 (6%)
- (2) 若現在開放水泥進口，則此一開放措施將如何影響水泥的價格，以及原來國內水泥業的銷售量和總收入。 (10%)

三、設有一經濟模型如下： (30%)

$$\text{財貨市場 (IS): } y = C(y - t(y)) + I(r) + g, \quad C' > 0, I' < 0$$

$$\text{貨幣市場 (LM): } \frac{\bar{M}}{P} = m = I(r) + k(y), \quad I' < 0, k' > 0$$

$$\text{生產函數: } y = y(N, K), \quad y_N > 0$$

$$\text{勞動市場: } P \cdot f(N) = P' \cdot g(N), \quad P' = p(P), 0 < p' < 1, f_N < 0, g_N > 0$$

其中，財貨市場中， y 為所得， t 為稅收，且稅收是所得的函數，而消費 C 則是可支配所得的函數；投資 I 為利率 (r) 的函數， g 則為政府支出。貨幣市場中， \bar{M} 為名目貨幣供給， P 為物價，而實質貨幣需求 m 則為利率與所得的函數。生產函數 y 則為勞動 (N) 與資本 (K) 的函數。勞動市場中， $f(N)$ 為勞動的邊際產量，預期的物價 P' 則為實際物價的函數， $g(N)$ 與勞動供給有關，請以圖形輔助分析下列問題：

- (1) 此一模型中，財政政策對產出和物價的影響為何？ (6%)
- (2) 本模型財政政策對產出的影響，與 IS-LM 模型有何不同？孰大孰小？為什麼？ (9%)

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- (3) 能源危機造成能源短缺的現象，使得勞動邊際生產力下跌，產出也下跌。請問生產函數如何變動？總合供給曲線如何變動？ (6%)
- (4) 若發生突發性的干擾，導致此一經濟體系的物價上升，則勞動市場的勞動供給與需求如何變動？就業量和名目工資的變動為何？ (9%)

24. One year ago, Jack and Jill set up a vinegar bottling firm (called JJVB). In that year: (30%)

- Jack and Jill put \$50,000 of their own money into the firm.
- They bought equipment for \$50,000 and an inventory of bottles and vinegar for \$15,000.
- They hired one employee to help them for an annual wage of \$20,000.
- JJVB's sales for the year were \$100,000.
- Jack gave up his previous job, at which he earned \$30,000, and spent all his time working for JJVB.
- Jill kept her old job, which paid \$30 an hour, but gave up 10 hours of leisure each week (for 50 weeks) to work for JJVB.
- The cash expenses of JJVB were \$10,000 for the year.
- The inventory at the end of the year was worth \$20,000.
- The market value of the equipment at the end of the year was \$28,000.
- JJVB's accountant depreciated the equipment over 6 years.
- The expected money paid to Jack and Jill due to the entrepreneurial input provided by them were \$12,000.
- The annual interest rate is 6%.

Please answer the following questions:

- Construct JJVB's explicit costs.
- Construct JJVB's opportunity costs.
- Compute JJVB's accounting profits.
- Compute JJVB's economic profits.
- Should JJVB's continue running business or closing out of business?

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國立政治大學圖書館

- Find $\frac{dy}{dx}$, if
 - $y = \ln \frac{(3+5x^4)^{11}}{\sqrt{5+x}}$ (4%)
 - $y = \int_0^{4x} \cos t \, dt$ (5%)
- Find the limit, if it exists $\lim_{x \rightarrow \infty} (x + e^x)^{1/x}$ (5%)
- If $z = \ln(w, u, v)$, $w = y^2 \sin^{-1} x$, $u = \frac{x}{y^2}$, $v = \tan^{-1} \frac{x}{y}$
Find $\frac{\partial z}{\partial x}$, $\frac{\partial z}{\partial y}$ (6%)
- If $y = \frac{3}{2} \left(\frac{x}{x-1} \right)^2$
 - Find the asymptotes
 - Find the intervals on which the function is increasing or decreasing.
 - Find the intervals on which the function is concave up or concave down.
 - Sketch the graph of the function. (20%)
- Test $f(x, y) = x^3 - 3xy + 6y^2$ for maxima, minima or saddle points. Find the function values at these points. (10%)
- Evaluate the integrals (21%)
 - $\int_2^1 \frac{dx}{x(x+3)^2}$
 - $\int_0^{\infty} x^2 e^{-x} dx$
 - $\int_0^1 \int_{\sqrt{x}}^1 e^{y^2} dy dx$
- Find the area of the region enclosed by $x = y^2$ and $x = -y^2 + 2$. (9%)
- Find the volume of the solid bounded by $z = 1 - xy$, $y = x$, $y = 1$ and xy -plane. (10%)
- Use a Taylor Polynomial of degree 4 for $f(x) = \ln(2x+1)$ with center at 0 to approximate $\int_{-1/4}^{1/4} \ln(2x+1) dx$. (10%)