20. On May 1, 1999, Tom Corp. declared and issued a 10% common stock dividend. Prior to this dividend, Tom had 100,000 shares of $1 par value common stock issued and outstanding. The fair value of Tom's common stock was $30 per share on May 1, 1999. As a result of this stock dividend, Tom's total stockholders' equity   a. increased by $300,000.
    b. decreased by $300,000.   c. decreased by $10,000.   d. did NOT change.

21. East Construction Company uses the percentage-of-completion method of accounting. In 1999, East began work on a contract it had received which provided for a contract price of $5,000,000. Other details follow:

	1999
Costs incurred during the year	$1,600,000
Estimated costs to complete as of December 31	2,400,000
Billings during the year	1,500,000
Collections during the year	900,000

What should be the gross profit recognized in 1999?
    a. $100,000.   b. $3,400,000.   c. $400,000.   d. $1,000,000.

【Q4】 King Co. at the end of 1999, its first year of operations, prepared a reconciliation between pretax financial income and taxable income as follows:

Pretax financial income	$300,000
Estimated litigation expense	400,000
Extra depreciation for taxes	(600,000)
Taxable income	$100,000

The estimated litigation expense of $400,000 will be deductible in 2000 when it is expected to be paid. Use of the depreciable assets will result in taxable amounts of $200,000 in each of the next three years. The income tax rate is 30% for all years.

22. 【Q4】 Income tax payable is   a. $0.   b. $30,000   c. $60,000.   d. $90,000.

23. 【Q4】 The deferred tax asset to be recognized is
    a. $30,000 current.   b. $60,000 current.   c. $90,000 current.   d. $120,000 current.

24. In accounting for a pension plan, any difference between the pension cost charged to expense and the payments into the fund should be reported as
    a. an offset to the liability for prior service cost.   b. accrued or prepaid pension cost.
    c. an accrued actuarial liability.   d. a charge or credit to unrealized appreciation and depreciation.

【Q5】 Alcott leased equipment to Cook Company on May 1, 1996.   At that time the collectibility of the minimum lease payments was NOT reasonably predictable.   The lease expires on May 1, 1998.   Cook could have bought the equipment from Alcott for $400,000 instead of leasing it. Alcott's accounting records showed a book value for the equipment on May 1, 1996, of $350,000. Alcott's depreciation on the equipment in 1996 was $45,000.   During 1996, Cook paid $90,000 in rentals to Alcott for the 8-month period. Alcott incurred main-tenance and other related costs under the terms of the lease of $8,000 in 1996.   After the lease with Cook expires, Alcott will lease the equipment to Teltec Company for another two years.

25. 【Q5】 The income before income taxes derived by Alcott from this lease for the year ended December 31, 1996, should be   a. $37,000.   b. $45,000.   c. $82,000.   d. $90,000.

26. 【Q5】 IGNORING INCOME TAXES the amount of expense incurred by Cook from this lease for the year ended December 31, 1996, should be   a. $37,000. b. $45,000. c. $82,000. d. $90,000.

27. If a company converted a short-term note payable into a long-term note payable, this transaction would   a. decrease only working capital.   b. decrease both working capital and the current ratio.
    c. increase only working capital.   d. increase both working capital and the current ratio.

28. An example of a change in accounting principle that should be handled currently is a change from the
    a. completed-contract method to the percentage-of-completion method for long-term contracts.
    b. LIFO method to the FIFO method for inventory valuation.
    c. sum-of-the-years'-digits method to the straight-line method.
    d. "full cost" method to another method in the extractive industry.

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（二）（24%）The balance sheet data of the Parker Company at the end of 1999 and 1998 follow:

	1999	1998
Cash	$ 20,000	$ 30,000
Accounts receivable (net)	60,000	50,000
Merchandise inventory	75,000	45,000
Prepaid expenses	10,000	25,000
Buildings and equipment	95,000	75,000
Accumulated depreciation--buildings and equipment	(18,000)	(8,000)
Land	85,000	40,000
Totals	$327,000	$257,000
Accounts payable	$ 65,000	$ 45,000
Accrued expenses	15,000	18,000
Notes payable-bank, long-term		50,000
Mortgage payable	35,000	
Common stock, $10 par	204,000	159,000
Retained earnings (deficit)	8,000	(15,000)
	$327,000	$257,000

Land was acquired for $45,000 in exchange for common stock, par $45,000, during the year; all equipment purchased was for cash. Equipment costing $7,000 was sold for $3,000, book value of the equipment was $5,000 and the loss was reported as an ordinary item in net income. Cash dividends of $15,000 were charged to retained earnings and paid during the year; the transfer of net income to retained earnings was the only other entry in the Retained Earnings account.

INSTRUCTIONS （可用中文答題）

Prepare a statement of cash flows for the year ended December 31, 1999, for Parker Company.

（三）（20%）南林公司民國 88 年 12 月 31 日之資產負債情形如下：

南林公司
資產負債帳面價值及公平市價
民國 88 年 12 月 31 日

項目	帳面價值	公平市價	項目	帳面價值	公平市價
現金	$700,000	$700,000	固定資產（淨額）	700,000	800,000
應收款（淨額）	320,000	300,000	專利權	300,000	200,000
有價證券	520,000	500,000	流動負債	500,000	500,000
存貨（後進先出法）	260,000	300,000	長期負債	700,000	700,000

若華東公司 89 年 1 月 1 日分別以（1）$1,800,000；（2）$1,100,000；（3）$500,000 等三種不同價格購買南林公司，試依據會計原則列出華東公司在此三種不同情形下應有之取得分錄

1. Find the derivative of

a. (10 points) $y = \dfrac{(1-2x)(3x+2)}{5x-4}$

b. (10 points) $y = \ln \dfrac{x(x^2+1)^2}{\sqrt{2x^3+1}}$

2. (10 points) Find the tangent line to the graph of

$$y = \sqrt[3]{(x^2+4)^2}$$

when x=2.

3. (10 points) Find the slope of the graph of $2x^2 - y^2 = 1$ at the point (1,1).

4. (10 points) A company is increasing the production of a product at the rate of 200 units per week. The weekly demand function is modeled by

$$p = 100 - 0.001x$$

where p is the price per unit and x is the number of units produced in a week. Find the rate of change of the revenue with respect to time when the weekly production is 2000 units.

5. (10 points) By increasing its advertising cost x for a product, a company discovers that it can increase the sales y (in thousands of dollars) according to the model

$$y = \frac{1}{10,000}(300x^2 - x^3), \quad 0 \le x \le 200$$

Find the point of diminishing returns for this product.
(Hint: An increased investment beyond this point is usually considered a poor

一、什麼是共主資源（common property resources）？假設一個為完全競爭的產品市場中，有一項生產要素為共主資源，請對論市場的均衡與衡平什和福利損失。要繪正這種福利損失的話，是否有福利損失存在？如果產品市場為一獨占市場的話，是否有福利損失存在？請說明之。（25分）

二、討論財產稅的租稅歸宿時有所謂舊觀點和新觀點（old view and new view）之分，請分別說明其主要內涵及根據，我國的財產稅制度中，包含那些租稅項目？各稅目的主要內容為何？並分別根據舊觀點和新觀點討論這些稅目的租稅歸宿。（25分）

三、根據經濟體系由兩個個人所組成，消費兩種財貨：X（私有財）、G（公共財）。兩人的效用均為 $u(X_i, G) = X_i G^{1/3}$, $i=1,2$。總產體系的生產可能線為 $X_1 + X_2 + G = C$，C 為一正常數，表示總經濟資源的數量，請回答下列各問題：（25分）

1. 用圖形表示符合 Pareto 效率的資源分配的狀態。
2. 假設社會福利函數為 utilitarian 型，以追求社會福利最大為目的的政府應選擇那一個資源分配？
3. 導出公共財的私人賽源提供（voluntary provision）水準，並說明為什麼這個水準不符合效率的條件。

四、在對調原過兩商品稅的設計中，Ramsey Rule 及 Corlett-Hague Result 是兩個個與商品彈性有關的法則，請分別導出這兩個法則，並討論其意涵。（25分）

6. **(10 points)** The demand and supply functions for a product are modeled by

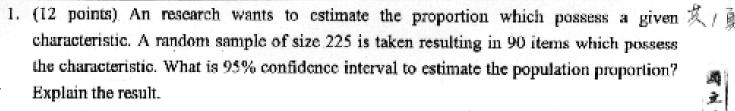Demand: $p = -0.36x + 9$

Supply: $p = 0.14x + 2$

Where x is the number of units (in millions). Find the producer surplus for this product.

7. **(10 points)** A psychologist finds that the probability that a participant in a memory experiment will recall between a and b percent (in decimal form) of the material is

$$P(a \leq x \leq b) = \int_a^b \frac{28}{9} x \sqrt[3]{1-x} \, dx, \quad 0 \leq a \leq b \leq 1.$$

Find the probability that a randomly chosen participant will recall between 0% and 87.5% of the material.

8. **(10 points)** Find the indefinite integral $\int x^2 e^x dx$

9. **(10 points)** Evaluate the definite integral $\int_1^e \ln x \, dx$

1. (12 points) An research wants to estimate the proportion which possess a given characteristic. A random sample of size 225 is taken resulting in 90 items which possess the characteristic. What is 95% confidence interval to estimate the population proportion? Explain the result.

2. (14 points) A student randomly guesses the answers to a four question true/false test. If there is a 50% chance of guessing correctly on each question.
   (a) What is the probability that the student misses one question?
   (b) What is the probability that the student misses no question?

3. (14 points) An analysis of personal loans at Mucha Bank revealed the following facts: 15% of all personal loans are in default (D), 85% of all personal loans are not in default (ND), 20% of those in default are homeowners (H | D), and 70% of those not in default are homeowners (H | ND). If one of the personal loans is selected at random,
   (a) what is $P(H \cap D)$? Explain the result.
   (b) what is $P(D | H)$? Explain the result.

4. (20 points) Let X_1, X_2, ... , X_n be n independent random variables having identical distributions with mean μ and variance σ^2.
   (a) Please describe the "Central Limit Theorem" using these variables.
   (b) Please set up an example to demonstrate the application of this theorem.

5. (20 points) Given the following joint probability distribution,

			X	
		0	1	2
	0	0.05	0.1	0.03
Y	1	0.21	0.11	0.19
	2	0.08	0.15	0.08

   (a) Find the marginal distribution of X and Y.
   (b) Calculate $E[X]$.
   (c) Calculate $Var[X]$.
   (d) Calculate $Cov[X,Y]$.
   (e) Calculate the conditional probability $Prob[X = 1 | Y > 0]$.

6. (20 points) The following data is to be used to construct a linear regression model:

   $$\hat{Y}_i = a + bX_i$$

x	3	5	4	7	12
y	10	12	14	18	20

   (a) What is the value of the slope b?
   (b) What is the value of the intercept a?
   (c) What is the value of the coefficient of determination R^2?
   (d) What is the value of the standard error of the estimate S_e?
   (e) Using the significance level 0.05 to test the null hypothesis $H_0 : \beta = 0$.
      ($t_{3, 0.025} = 3.182$)

共 3 頁

個體經濟學

一. 簡要評論下列敘述：

(a). 某正常財(X)不可能為某劣等財(Y)之互補財，因該劣等財(Y)必為該正常財(X)之替代財。(5 分)

(b). CES(Constant elasticity of substitution)效用函數所對應之需求函數具有固定需求彈性。(5 分)

(c)在一簡單交易經濟體系(pure exchange economy)中僅有的兩人，偏好均符合良好規範(convex-to-the-origin)，即便其中一人現具有獨自設定財貨交易之價格比值之權限，福利經濟學之第二定理仍然成立。(5 分)

二、消費者之所得為 M，效用函數為 $U(x,y,z) = \alpha \log x + \beta \log y + \gamma z$，$\alpha$、$\beta$、$\gamma > 0$，$\alpha + \beta = 1$。財貨之市場價格分別為 (p_x, p_y, p_z)。試求出：

(a) 當所得相當大(以至於產生內部解)，若 p_x 之價格變動，財貨 y 所引發之(Hicks)替代效果為何？(8 分)

三. 近日產業新聞中，四月四日美國聯邦法官 Jackson 判決微軟(Microsoft)嚴重違反反托辣斯法一案，顯然蔚受矚目。在判決書中更載明：『（微軟）以阻擾競爭的手段維持獨佔，並意圖壟斷網路瀏覽器市場、、、』，由此可見網路之普及對現代經濟結構之巨大衝擊。

(a) 若定義網路外部性為『消費某一產品所得之效用會因相容產品之網路使用人數增多而增加』，請以『使用網路人數』為橫軸座標，具有網路外部性之『財貨單價』為縱軸座標，搭配妳（你）所知的基礎經濟概念（如邊際效用遞減、邊際替代率遞減或遞增、Willingness to pay、財貨間的互補或替代等）描繪該財貨之需求曲線（可考慮斜率、截距、轉折、彈性等特性）。(7 分)

(b) 針對此判決所可能採行的懲罰(補救)措施之一為: 將微軟分割為數家規模較小且競爭之公司。假設分割為兩家後之成本函數分別為:

$c_1(q), c_2(q) = 2c_1(q)$，且 $c_1(0) = 0, c_1(q)$ 為嚴格凸函數

則在 Cournot 均衡下，該產業(僅含兩家廠商)之生產總成本是否同時已極小化了？(10 分)

(c) 將(b)小題之條件修改為

$c_2(q) = c_1(q)$

後，結論是否有所改變？(5 分)

(d) 根據(b)、(c)小題的推論結果，可對「分割」之提議作出何種(有關產業配置效率)判斷？(5 分)

1. **Short-Answer Questions (25 points):** Answer only **five** of the following questions. Answer the first two questions (i.e., question 1 and question 2) and any three of the remaining questions. State whether they are **True**, **False**, or **Uncertain**. Explain why using any appropriate diagrams, equations, empirical results, or stylized facts. Be sure to state all pertinent assumptions you are making. Each question is worth five points.

1. Whether the money supply in the Keynes system is exogenously or endogenously determined is ambiguous.
2. According to Milton Friedman, the measure of economic science is not reality of assumptions but accuracy of predictions.
3. A higher interest rate will induce a higher velocity of money.
4. For given private saving and investment, the larger the budget deficit, the larger the trade deficit.
5. The real business cycle (RBC) theory argues that changes in money supply do not cause major changes in output.
6. According to endogenous growth theory, nations with a high savings rate would experience a high long-term growth rate.
7. Hyman Minsky's "financial instability hypothesis" (FIH) states that investment is the source of the fluctuations of the economy.
8. The marginal propensity to consume out of permanent income is greater than the marginal propensity to consume out of transitory income.

2. **Problems (10 points):** Answer only **one** of the following questions. Show all your work and the formula you used to arrive at your answer.

1. You are given the following simple Keynesian model of an open economy:

$C = 65 + 0.7Y$

$I = 125$

$G = 65$

$X = 85$

$M = 30 + 0.2Y$

(a) In equilibrium, does this economy experience a trade surplus or a trade deficit? (5 points)

(b) If investment falls to $I = 95$, what is the trade balance of this economy? (5 points)

2. (An Endogenous Growth Model) Consider an economy whose production function is $Q = K^\theta (AL)^{1-\theta}$, with $A = 4(K/L)$. Assume that it has a savings rate of 0.2, a population growth rate of 0.1, an average depreciation rate of 0.1, and that $\theta = 0.5$.

(a) Reduce the production function to the form $q = \alpha k$. [Note: $q = Q/L$ and $k = K/L$.] What is α? (5 points)

(b) What is the growth rate of output? (5 points)

六、二. **Essay Questions (15 points): Answer only one of the following questions.**

1. (**Diagrammatically** answer this question) Suppose that the discovery of large oil deposits have substantially increased the world supply of oil (or energy in general). As a result, the relative price of energy falls. Further assume that energy and labor are complements in production. Use the classical model to demonstrate the impact of this change in oil supply on the following variables. Be sure to state all relevant assumptions.

  a. price level   b. real output   c. employment   d. real wage   e. nominal wage

2. Consider the following fixed price Keynesian model.

$$Y = C(Y - T) + I(r) + G$$

$$\frac{M^d}{P} = L(Y, r + \pi)$$

$$M^s = M$$

Calculate the effect of an increase in taxes on income.

（一）選擇題（56分）：答對1題得2分，答錯倒扣1分（總分56分扣完為止）。及4頁　4
　　　未答者不給分亦不扣分。可用僅有 +、-、×、÷ 功能之計算机。

1. According to the FASB's conceptual framework, predictive value is an ingredient of

	Relevance	Reliability		Relevance	Reliability
a.	Yes	Yes	b.	Yes	No
c.	No	Yes	d.	No	No

2. The accounting principle of matching is best demonstrated by
　　a. not recognizing any expense unless some revenue is realized.
　　b. associating effort (expense) with accomplishment (revenue).
　　c. recognizing prepaid rent received as revenue.
　　d. establishing an Appropriation for Contingencies account.

3. In order to be classified as an extraordinary item in the income statement, an event or transaction should be
　　a. unusual in nature, infrequent, and material in amount.
　　b. unusual in nature and infrequent, but it need not be material.
　　c. infrequent and material in amount, but it need not be unusual in nature.
　　d. unusual in nature and material, but it need not be infrequent.

4. In a statement of cash flows, receipts from sales of property, plant, and equipment and other productive assets should generally be classified as cash inflows from
　　a. operating activities.　b. financing activities.　c. investing activities.　d. selling activities.

【Q1】 Hart Co. assigned $500,000 of accounts receivable to Moon Finance Co. as security for a loan of $420,000. Moon charged a 2% commission on the amount of the loan; the interest rate on the note was 10%. During the first month, Hart collected $140,000 on assigned accounts after deducting $380 of discounts. Hart accepted returns worth $1,350 and wrote off assigned accounts totaling $3,730.

5. 【Q1】 The amount of cash Hart received from Moon at the time of the assignment was
　　a. $378,000.　　b. $410,000.　　c. $411,600.　　d. $420,000.

6. 【Q1】 The entries to record the collections during the first month would include a
　　a. debit to Cash of $140,380.　　b. debit to Bad Debts Expense of $3,730.
　　c. debit to Allowance for Doubtful Accounts of $3,730.
　　d. credit to Accounts Receivable of $145,460.

7. Cass Co. received merchandise on consignment. As of March 31, Cass had recorded the transaction as a purchase and included the goods in inventory. The effect of this on its financial statements for March 31 would be
　　a. no effect.
　　b. net income was correct and current assets and current liabilities were overstated.
　　c. net income, current assets, and current liabilities were overstated.
　　d. net income and current liabilities were overstated.

8. Byrd Co. accepted delivery of merchandise which it purchased on account. As of December 31, Byrd had recorded the transaction, but did not include the merchandise in its inventory. The effect of this on its financial statements for December 31 would be
　　a. net income, current assets, and retained earnings were understated.
　　b. net income was correct and current assets were understated.
　　c. net income was understated and current liabilities were overstated.
　　d. net income was overstated and current assets were understated.

9. To produce an inventory valuation which approximates the lower of cost or market using the conventional retail inventory method, the computation of the ratio of cost to retail should
　　a. include markups but not markdowns.　　b. include markups and markdowns.
　　c. ignore both markups and markdowns.　　d. include markdowns but not markups.

10. When calculating the cost ratio for the retail inventory method,
　　a. if it is the conventional method, the beginning inventory is included and markdowns are deducted.

考試科目	會計學		系級	財政所	日 期 Date,	4 月 23 日	試題編號
Course					Period 第	節	CourseNo,

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b. if it is the LIFO method, the beginning inventory is excluded and markdowns are deducted.

c. if it is the LIFO method, the beginning inventory is included and markdowns are not deducted.

d. if it is the conventional method, the beginning inventory is excluded and markdowns are not deducted.

11. On January 1, 1991, Edge Corporation purchased for $31,000, equipment having a useful life of ten years and an estimated salvage value of $1,000. Edge has recorded monthly depreciation of the equipment on the straight-line method. On December 31, 1999, the equipment was sold for $5,000. As a result of this sale, Edge should recognize a gain of

    a. $0.   b. $1,000.   c. $1,900.   d. $5,000.

12. Which of the following principles BEST describes the current method of accounting for research and development costs?

    a. Associating cause and effect   b. Systematic and rational allocation

    c. Income tax minimization   d. Immediate recognition as an expense

13. Reyes Corporation, which has a calendar year accounting period, purchased a new machine for $30,000 on April 1, 1994. At that time Reyes expected to use the machine for nine years and then sell it for $3,000. The machine was sold for $16,500 on Sept. 30, 1999. Assuming straight-line depreciation, no depreciation in the year of acquisition, and a full year of depreciation in the year of retirement, the gain to be recognized at the time of sale would be

    a. $3,000.   b. $2,250.   c. $1,500.   d. $0.

14. Gowan Products Corp. provides an incentive compensation plan under which its president receives a bonus equal to 20% of the Corporation's income in excess of $200,000 before income tax but after the bonus. If income before tax and bonus is $800,000 and the effective tax rate is 30%, the amount of the bonus would be

    a. $84,000.   b. $100,000.   c. $120,000.   d. $160,000.

【Q2】 On January 1, 2000, Albus Co. issued eight-year bonds with a face value of $100,000 and a stated interest rate of 6%, payable semiannually on June 30 and December 31. The bonds were sold to yield 8%. Table values are:

Present value of 1 for 8 periods at 6%: 0.627   Present value of 1 for 8 periods at 8%: 0.540

Present value of 1 for 16 periods at 3%: 0.623   Present value of 1 for 16 periods at 4%: 0.534

Present value of annuity for 8 periods at 6%: 6.210

Present value of annuity for 8 periods at 8% : 5.747

Present value of annuity for 16 periods at 3%: 12.561

Present value of annuity for 16 periods at 4% : 11.652

15. 【Q2】The present value of the principal is   a. $53,400.   b. $54,000.   c. $62,300   d. $62,700.

16. 【Q2】 The present value of the interest is   a. $34,482.   b. $34,956.   c. $37,260.   d. $37,683.

17. 【Q2】 The issue price of the bonds is   a. $88,356.   b. $88,482.   c. $88,956.   d. $99,960.

【Q3】 Jay Co. had issued 100,000 shares of $10 par common stock for $1,200,000. Jay acquired 10,000 shares of its own common stock at $15 per share. Three months later Jay sold 5,000 of these shares at $19 per share.

18. 【Q3】 If the cost method is used to record treasury stock transactions, to record the sale of the 5,000 treasury shares, Jay should credit

    a. Treasury Stock for $95,000.

    b. Treasury Stock for $50,000 and Paid-in Capital from Treasury Stock for $45,000.

    c. Treasury Stock $75,000 and Paid-in Capital from Treasury Stock for $20,000.

    d. Treasury Stock $75,000 and Paid-in Capital in Excess of Par for $20,000.

19. 【Q3】 If the par value method is used to record treasury stock transactions, to record the sale of the 5,000 treasury shares, Jay should credit

    a. Treasury Stock for $95,000.

    b. Treasury Stock for $50,000 and Paid-in Capital in Excess of Par for $45,000.

    c. Treasury Stock for $50,000 and Paid-in Capital from Treasury Stock for $45,000.

    d. Treasury Stock for $75,000 and Paid-in Capital from Treasury Stock for $20,000.