

國立中山大學 104 學年度碩士暨碩士專班招生考試試題

科目名稱：經濟學【財管系碩士班】

題號：443001

※本科目依簡章規定「不可以」使用計算機(混合題)

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經濟學[財管系碩士班]試題共有兩部份，兩部份總計共 100 分。

第一部份：總體經濟，五十分

選擇題，單選，每題三分，共四十五分

1. Which of the following is a transfer payment?
 - a) the wages paid to government employees
 - b) the government's payment to a constructor for building a bridge
 - c) the government's payment to foreign countries for arms purchase
 - d) regular pension payments to retired government employees
2. Who among the following is likely to have the highest marginal propensity to consume out of current income?
 - a) a rational consumer who intends to behave strictly according to the permanent income hypothesis
 - b) a risk averse consumer facing a high degree of uncertainty
 - c) a low-income consumer facing borrowing constraints
 - d) a working age consumer looking forward to retirement
 - e) a wealthy person who is currently accumulating funds to leave to his heirs
3. The economy's IS curve has a downward slope because
 - a) when output is too high, firms cut investment to reduce inventory
 - b) as income rises, consumption rises and saving falls
 - c) as interest rates rise, investment decreases
 - d) as uncertainty increases, saving rises and consumption falls
 - e) as government purchases rise, interest rates fall
4. If a government aims to raise inflation by printing money, does it help to reduce the burden of government debt?
 - a) Yes, it helps to reduce the debt/GDP ratio if the debt is denominated in home currency
 - b) Yes, it helps to reduce the debt/GDP ratio if the debt is denominated in a foreign currency
 - c) Yes, high inflation reduces the nominal value of existing debt
 - d) Yes, high inflation reduces the nominal interest payments on existing debt
 - e) Yes, high inflation makes issuing new debt cheaper in nominal value
5. Sterilized intervention in the foreign exchange market is defined as
 - a) Intervention that is offset by open market operations that leave the monetary base unchanged
 - b) Intervention that is ineffective
 - c) Intervention that leaves the stock of foreign assets held by the Central Bank unchanged
 - d) Intervention that is to leave the exchange rate unchanged
6. Comparing the GDP of U.S. and China by Purchasing Power Parity exchange rates rather than market exchange rates
 - a) Exaggerate the difference between U.S. and China since U.S. has greater purchasing power
 - b) Should adjust for differences in country sizes
 - c) Makes GDP calculations more volatile over time
 - d) Reduces the difference between U.S. and China because in China a given amount of dollars purchases more goods and services.
7. Which of the following countries has the highest gross government debt to GDP ratio in recent years?
 - a) Italy
 - b) Brazil
 - c) China

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- d) Japan
e) U.S.
8. An economy in which $GDP = 900$, $C = 600$, $T = 100$, $I = 100$, $G = 300$ must have
- exports equal to imports
 - a sum of private saving and public saving to be equal to 0
 - a financial account deficit of 100
 - net exports of 100
9. According to the permanent income hypothesis, which of the following should raise current consumption the most?
- a lottery prize of \$1,000
 - an unexpected year-end bonus of \$1,000
 - a temporary tax cut of \$1,000
 - an increase of \$1,000 in annual salary
 - an inheritance of \$1,000
10. In most industrial economies, the largest component of national income is
- wages and salaries
 - corporate profits
 - interest on bank accounts and bonds
 - rental income
11. As the demand for money declines,
- the IS curve shifts outward
 - the LM curve shifts inward
 - the velocity of money will adjust to keep output constant
 - interest rates will fall and output will increase
 - interest rates will rise and investment will decline
12. Central banks in developed countries commonly aim to keep the price level
- declining slightly
 - constant
 - growing by about 1% per year
 - rising by about 2% per year
 - increasing by about 5% per year
13. The amount of monetary base is equal to
- gold
 - gold plus foreign exchange reserves
 - gold plus foreign exchange reserves plus government bond holdings
 - coins, currency, and demand deposits
 - currency in circulation and bank reserves
14. A reduction in the marginal propensity to save would shift
- the IS curve downward
 - both the IS curve and the aggregate demand curve outward
 - the LM curve inward
 - both the LM curve and the aggregate demand curve inward
 - the aggregate demand curve inward

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15. According to the new classical macroeconomics which assumes rational expectations, there is no need for government macroeconomic policies to stabilize the economy. Which in the following is not a reason consistent with the new classical macroeconomics?
- The government cannot know surprises to aggregate demand in advance
 - If the shock to aggregate demand is anticipated, labor market will adjust to keep full employment
 - If the shock to aggregate demand is a surprise, labor market will adjust to return full employment afterwards
 - The government knows the surprises to aggregate demand beforehand, and it spreads the information to the public and let the labor market adjust to keep full employment

計算題，共五分（寫出答案即可，勿寫算式）：

- An economy has a potential output of 90 and current actual output of 100. The current tax revenue is 50 and government deficit is zero. What is the structural fiscal deficit or surplus if the point elasticity of tax revenue with respect to output is 0.5 while the point elasticity of government spending with respect to output is -0.25? (3 points)
- Suppose $C = 6,000 + 0.75(Y - T)$, $I = 4,000$, $G = 2,000$, and $T = 0.2Y$. At the equilibrium level of output, $G - T = ?$ (2 points)

第二部分(個體經濟學)填空題答案全對才給分。只需要填入最後的完整答案，”請勿”寫出計算過程。答案卷請製作如下：

(1)	(2)	(3)
(4)	(5)	(6)
(7)	(8)	(9)
(10)		

第二部份個體經濟學：共 10 格，每一格 5 分，共計 50 分。

- Suppose that Robinson Crusoe produces and consumes fish (F) and coconuts (C). Assume that during a certain period he has decided to work 200 hours and is indifferent as to whether he spends this time fishing or gathering coconuts. Robinson's production for fish is given by $F = \sqrt{l_f}$; and for coconuts by $C = \sqrt{l_c}$; where l_f and l_c are the number of hours spent fishing or gathering coconuts. Consequently, $l_f + l_c = 200$; Robinson Crusoe's utility for fish and coconuts is given by: $U = \sqrt{F * C}$;
 - If Robinson cannot trade with the rest of the world, how will the optimal levels of F and C? (F^* , C^*) (1)
 - Now suppose that trade is opened and Robinson can trade fish and coconuts at the price ratio of $P_f/P_c = 2/1$. If Robinson continues to produce the quantities of F and C in part (a) what level of F and C (F' , C') will he choose to produce, given the opportunity to trade? (F' , C') (2)
- Consider the "Tragedy of the Commons" model- that individuals (n) acting independently and rationally according to each's self-interest, behave contrary to the best interests of the whole group. Consider the case of two individual firms ($n = 2$). Assume that unit cost is $c = 20$ and assume the production function (v) is $v(G) = 200 - 0.5 G^2$. Where G is total output, g_1 and g_2 are firm 1 as well as firm 2 output, respectively; and of course, $G = g_1 + g_2$.
 - Under Nash equilibrium production (G^*), identify the Nash equilibrium (g_1^* , g_2^*). (3)
 - What is the collective social optimum (G^{**})? (4)

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3. Assume a person gains utility from both money income W and leisure time L , and has the utility function $U = W^{1/2} L^{1/2}$ which represents preferences about relative bundles and about risks associated with those bundles (i.e., it is a VonNeumann-Morgenstern utility function). Suppose the person has $W = \$400$ and $L = 100$.

a. A lottery ticket is available that might pay zero when loss, and might pay \$500 when win. Assume the chance of winning is π , for this person to be willing to pay \$5 for the ticket, how much of the income (W) when the person win the lottery, and how much of the income for the loss? (win, loss) (5)

b. Now forget the lottery ticket. Consider a more important gamble in life: Suppose there is a 2% chance of the person being vocationally disabled. If the disability does occur, income will drop to \$36, and leisure will increase to 225. What is the utility of disability person in this case? (6) If this person wants to buy an insurance for a "Disability Insurance policy", how much premium would he/she be willing to pay that would replace the lost income in case of disability? (7)

4. The possible effects of global warming, and of attempts to avoid it, are likely to have very different effects on different countries in terms of both benefits and costs. The nature of international competition and cooperation always involves significant strategizing, and this applies to global warming management as well. The assignment in this question is to use a game theory approach to illustrate some of the issues involved. For simplicity, assume there are 2 players (2 countries with common interests), which we will call A and B. Suppose there are two general approaches to dealing with the global warming threat: strict carbon emission controls, and lax carbon emission controls. Suppose the benefits and costs of controls in the possible cases are the following:

If A is strict and B is strict:

Costs to A are 1000 and costs to B are 600; benefits to A are 1200 and benefits to B are 1800.

If A is strict and B is lax:

Costs to A are 1000 and costs to B are zero; benefits to A are 500 and benefits to B are 400.

If A is lax and B is strict:

Costs to A are zero and costs to B are 600; benefits to A are 500 and benefits to B are 400.

If A is lax and B is lax:

Costs to both are zero: benefits to both are zero.

a. Consider this static game in pure strategies: If the two countries choose strategies simultaneously and with perfect knowledge of the other's actions, what will be the optimal outcome for A and B? (8)

b. Consider a dynamic game in pure strategies; if international politics commend that A must act first and B will follow, what will be the likely outcome? (9)

c. Consider the possibility of a game with the possibility of mixed strategies; in reality, the countries might not have to commit to a given strategy, but could strategically introduce uncertainty about their intentions. In a static game with the possibility, how would be the country A possibility distribution of (strict, lax)? (10)

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第 1 題至第 10 題為單選題，每題 5 分。

第 11 至第 20 題：各題之選項獨立判定，所有選項均答對者，得 5 分；答錯 1 個選項者，得 3 分；答錯 2 個選項者，得 1 分；答錯多於 2 個選項或所有選項均未作答者，該題以零分計算。總共有 20 題，每題 5 分，總分為 100 分。

1. We use hundreds of stocks to establish a portfolio. Which of the following has the highest impact on the portfolio variance? (A) Individual stocks' variance (B) Covariance among stocks (C) Individual stocks' beta (D) Individual stocks' expected returns (E) Individual stocks' firm-specific risk.
2. $T=0$ $\frac{1}{\$100}$ $\frac{2}{\$100}$ $\frac{3}{\$100}$ (year)
..... (perpetuity)
The above cash flows start at $T=0$ and generate \$100 every year. Discount rate = 5% a year. PV of these cash flows = (A) Lower than 2000. (B) Equal to 2000. (C) 2001~ 2100 (D) 2101~2200 (E) Higher than 2200.
3. 需考慮稅率=20%、資訊是對稱的、市場投資組合報酬率(R_m)=10%，某公司原為零負債(股東權益市值=10 億元，股東要求報酬率=10%，EPS 為永續年金)，現在決定舉債 5 億元買回公司股票，舉債利息 5%，舉債買回股票後公司資金成本(WACC)等於多少？(A)9%~9.50% (B)9.51% ~ 9.99%(C)10.00%~10.49% (D)10.50%~11.00% (E)大於 11.0%
4. 假設市場有效率，某公司(股價\$50,在外流通股數 100 萬股,每年 EPS=\$4)欲發行股票籌資\$1 千萬以投資於方案 X(其 IRR=10%、假設產生永續年金現金流入),股東要求報酬率為 8%,應發行多少新股呢？(A)低於 19 萬(B)19.01 萬~19.25 萬(C)19.26 萬~19.50 萬(D)19.51~萬 19.99 萬(E)大於或等於 20 萬.
5. 延續上一題，發行之新股每股價格為多少元？(A)低於或等於 3.5 (B)3.51~4.00 (C)4.01~4.50 (D)4.51~5.00 (E)大於或等於 5.01
6. When we analyze risk and return characteristics of buying a put option, a similar investment position [as a comparison] should be : (A) Buying call option (B) Selling call option (C) Buying underlying asset (D) Selling underlying asset (E) Buying futures.
7. When an option has intrinsic value, it is said to be: (A) In the money. (B) Out-of-the money. (C) At-the-money. (D) Time dependent. (E) Risk neutral.
8. Empirically, stock return $R = \alpha + \beta_1 \times R_m + \beta_2 \times \text{Size} + \beta_3 \times \text{BM ratio}$, where R_m is market portfolio return. β_2 : (A) > 0 . (B) < 0 . (C) $= 0$. (D) Larger than β_1 . (E) Larger than β_3 .

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9. It is Jan. 1 now. You have 1,000 shares of stock ABC. Stock price= \$50 per share. Put option prices (P) on ABC are as follows:

<u>K (exercise price)</u>	<u>T (maturity)= Jan. 31</u>	<u>T= March 31</u>	<u>T= June 30</u>
\$ 30	\$ 7:	\$ 5: (C)	\$ 6:
35	\$ 6: (A)	\$ 5: (D)	\$ 7:
40	\$ 5: (B)	\$ 5: (E)	\$ 8:

You want to do a 30-day protective put strategy. Which option should you buy? Select one of (A),(B),(C),(D), and (E).

10. Which of the following is/are correct? I. It's possible for a project to have 2 or more Modified IRRs. II. A project may have 2 or more IRRs. III. MIRR method cannot differentiate lending from borrowing. IV. When IRR rule contradicts NPV rule, we select the recommendation provided by NPV rule. (A)IV (B)II (C)III (D)II,III (E) None of the above.

11. 以下有關財務報表的敘述，哪一項(或哪些項)為正確：

- (A) 資產負債表說明某公司在某一段時間(如：103 年 1 月 1 日至 103 年 12 月 31 日)的資產、負債、股東權益帳面價值分佈狀況。
- (B) 資產負債表中，固定資產一定列於流動資產的下方，因為資產面的細項，是依據流動性的高低，由上往下排列。
- (C) 綜合損益表中的 Sales，乃以應計基礎計算，因此 Sales 項目的數字，未必代表實際的現金收入。
- (D) 綜合損益表中的 Sales，泛指公司任何的收入，包括本業收入與營業外收入。
- (E) 現金流量表中，發放給股東的現金股利項目，歸類於投資活動現金流量。

12. 以下是臺灣兩家公司(J 公司與 K 公司)最新的財務比率資訊：

	J	K
Current Ratio	1.96	1.52
Return on Assets	3.46%	2.5%
Inventory Turnover	5.03	3.21
Receivables Turnover	7.99	4.25
P/E ratio	14.2	20

假設 J、K 公司屬於同一產業，使用的會計方式相同，以下敘述哪一項(或哪些項)為正確：

- (A) J 公司短期償債能力優於 K 公司。
- (B) J 公司獲利能力優於 K 公司。
- (C) J 公司的存貨平均銷售天數長於 K 公司。
- (D) J 公司的應收帳款收現能力優於 K 公司。
- (E) 若僅以 P/E ratio 來看(不考慮其他變數)，K 公司股票較值得投資者買進持有。

13. 以下關於專案評估的敘述，各項互相獨立，哪一項(或哪些項)為正確：

- (A) 假設某專案需要發行股票籌措資金，在計算該專案的 NPV 時，不需考慮股票發行時付給發行券商之成本。
- (B) 假設某專案以保留盈餘來支應投入成本，在計算該專案的 NPV 時，必要報酬率設定為 0%。
- (C) 假設某專案需要發行付息債券籌措資金，在計算該專案的 NPV 時，以該債券的票面利率 (coupon rate) 作為必要報酬率。
- (D) 假設公司打算評估 A、B 兩個互斥專案，則不宜使用傳統 IRR 法評估專案可行性。

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- (E) 假設某專案在 $t=0$ 、3 皆有淨現金流出， $t=1$ 、2、4 皆有淨現金流入，則不宜使用傳統 IRR 法評估專案可行性。
14. 以下關於利率的敘述，各項互相獨立，哪一項(或哪些項)為正確：
- (A) 若債券殖利率大於票面利率，則債券市值小於債券面值。
 - (B) 若債券殖利率小於票面利率，則債券市值大於債券面值。
 - (C) 殖利率曲線若為正斜率，隱含：時間愈久，預期通貨膨脹率愈低。
 - (D) 習性偏好理論(Preferred Habitat Theory)認為：如果殖利率曲線為水平線，則未來短天期利率將不變。
 - (E) 市場分割理論(Segmented Markets Theory)認為：長期利率是由長期債券供需決定，短期利率是由短期債券供需決定。
15. 以下關於債券風險的敘述，各項互相獨立，哪一項(或哪些項)為正確：
- (A) 其他條件相同時，長期債券的價格風險小於短期債券。
 - (B) 其他條件相同時，低票面利率債券的價格風險小於高票面利率債券。
 - (C) 其他條件相同時，長期債券的再投資風險小於短期債券。
 - (D) 其他條件相同時，政府發行的債券，其違約風險小於上市公司發行的債券。
 - (E) 其他條件相同時，高順位債券的流動性風險小於低順位債券。
16. 以下關於債券名詞的敘述，各項互相獨立，哪一項(或哪些項)為正確：
- (A) T-bills 是指美國政府發行且發行時的到期日長達十年以上的長期債券。
 - (B) 在某些條件成立時，Convertible bonds 的投資者可將債券轉換為股票。
 - (C) 在某些條件成立時，Callable bond 的投資者可將債券賣回給債券發行者。
 - (D) Disaster bonds 通常由保險公司發行，當某些災害發生時，發行者不需支付票面利息。
 - (E) 實務上，高收益債券通常是指信用評等較差的債券。
17. 假設無風險利率為 1.5%，市場投資組合預期報酬率為 5.5%；關於公司普通股的資訊包括：Beta 值為 1.7，報酬率標準差為 35%，目前每股市價為 30 元，上週才剛發放每股現金股利 2.4 元，預計未來股利成長率為每年 1%。根據這些數字，以下敘述哪一項(或哪些項)為正確：
- (A) 依據 CAPM，公司普通股預期報酬率為 8.3%。
 - (B) 公司普通股的 Sharpe ratio 為 0.25。
 - (C) 公司普通股的 Treynor ratio 為 0.04。
 - (D) 公司普通股的 Jensen's alpha 為 0.37。
 - (E) 依據股利成長模式，公司普通股預期報酬率為 8.86%。
18. 以下關於財金時事的敘述，各項互相獨立，哪一項(或哪些項)為正確：
- (A) 目前在臺灣買賣公開上市股票，必須繳交證券交易稅。
 - (B) 目前臺灣集中市場上市公司每日股價漲跌幅為 10%。
 - (C) 目前臺灣上市公司不需於董事會設立薪酬委員會。
 - (D) 目前臺灣上市公司已無監察人，原監察人功能已由獨立董事取代。
 - (E) 目前臺灣上市公司股東依法可於股東大會時，針對高階經理人薪酬進行投票，以表達支持者反對公司薪酬政策。

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19. 考慮一歐式買權(call)，其到期日報酬為 $Max(S_T - K_1, 0)$ ，其中 S_T 為到期日標的資產價格， K_1 為固定之履約價；另外有一歐式賣權(put)，其到期日報酬為 $Max(K_2 - S_T, 0)$ ，其中 S_T 為到期日標的資產價格(與前述歐式買權標的資產相同)， K_2 為此賣權之固定履約價。假設標的資產不發放股利，以下敘述哪一項(或哪些項)為正確：
- (A) 當標的資產價格增加一單位時，上述歐式買權現值變化量恆不為負值。
 - (B) 當標的資產價格增加一單位時，上述歐式賣權現值變化量恆不為負值。
 - (C) 當標的資產波動度增加一單位時，上述歐式買權現值變化量恆不為負值。
 - (D) 當標的資產波動度增加一單位時，上述歐式賣權現值變化量恆不為負值。
 - (E) 當無風險利率增加一單位時，上述歐式買權現值變化量恆不為負值。
20. 有時上市公司會宣告：預計在某段時日於公開市場買回部份流通在外股票。以下敘述哪一項(或哪些項)為正確：
- (A) 此宣告可能傳達某些訊息，反應公司高層認為目前股票市價被低估。
 - (B) 買回部份流通在外股票可能是為了將股票轉讓給員工。
 - (C) 上市公司宣告買回股票後，所有股東皆可取得現金。
 - (D) 依現行臺灣法令，上市公司買回股票前，必須經過董事會表決同意。
 - (E) 依現行臺灣法令，上市公司正式於公開市場買回股票前，必須於股東大會獲得過半數股東同意。

國立中山大學 104 學年度碩士暨碩士專班招生考試試題

科目名稱：統計學【財管系碩士班】

題號：443003

※本科目依簡章規定「不可以」使用計算機(問答申論題)

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統計學[財管系碩士班]

※本科試題共 20 小格，每小格 5 分，共計 100 分。

1. 每一空格答案須全對才給分。
2. 只需填入最後答案，不需寫出計算過程。
3. 無法整除者，最後答案以四捨五入法，請取到小數點後第三位。

答案卷請製作如下：所有答案必須作答到答案本，不可在本試題卷上作答。

(1)	(2)	(3)
(4)	(5)	(6)
(7)	(8)	(9)
(10)	(11)	(12)
(13)	(14)	(15)
(16)	(17)	(18)
(19)	(20)	

◎共 20 格，每一個空格 5 分，共計 100 分。

#1. An investor constructs a portfolio consisting of 5 firms as following table.

Firm	Firm size (million dollars)	Expected return
A	100	8%
B	150	6%
C	300	5%
D	250	12%
E	200	9%

- a. What is the equal-weighted mean of expected return of the portfolio? (1)
- b. What is the weighted mean (according to firm size) of expected return of the portfolio? (2)

#2. To analyze how many hours students spend in reading per week, David surveyed 500 students between the ages of 15 and 18. The survey results are reported in the following table.

Hours of reading per week	Number of survey responses
Less than 1	16
1~5	46
6~10	132
11~15	153
16~20	83
21~25	42
26~30	20
31 or more	8

For a randomly selected student, compute the following.

- a. The probability the student spends reading for less than 1 hour per week. (3)
- b. The probability the student spends reading for at least 21 hours per week. (4)
- c. The probability the student spends reading for 10 or fewer hours per week. (5)

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#3. For some insurance company, the payment and the probability distribution for damage claims on collision insurance are shown as what follows.

Payment (\$)	Probability
0	0.80
300	0.08
500	0.06
1200	0.05
3000	0.01

- a. Use the expected collision payment to determine the collision insurance premium that ensure the company to make neither a profit nor a loss (i.e., break even). (6)
 b. Compute the variance of the payment. (7)

#4. In a survey of a bank, one out of three investors have REIT (real estate investment trust) in their portfolios. Consider a sample of 10 investors.

- a. Compute the probability that exactly 2 investors have REIT in their portfolios. (8)
 b. Compute the probability that at least 2 of the investors have REIT in their portfolios. (9)
 c. If you found that exactly 9 of the investors have REIT in their portfolios, would you doubt the accuracy of the survey results? (yes or no?) (10)
 d. Compute the expected number of investors who have REIT in their portfolios. (11)

#5. In landscaping of the Kasey's Nursery for residential areas, the estimated labor cost depends on the number of plantings of trees, shrubs, and so on. For cost-estimating purposes of some project, managers spend 3 hours of labor time on the planting of a medium-sized tree. There are actual times of 10 plantings during the past month (times in hours), as in follows.

3.2; 3.5; 3.1; 3.3; 3.1; 3.1; 2.9; 3.0; 2.8; 3.4

At the 5% significance level, please examine whether the mean tree-planting time (assume μ) differs from 3 hours.

- a. State the null and alternative hypotheses. (12)
 b. Compute the sample standard deviation. (13)
 c. Would you reject the null hypothesis at 5% significance level? (yes or no?) (14)

#6. For the following five observations for two variables, x and y , the estimated regression equation for these data is $\hat{y} = 30 - 5x$.

x_i	1	3	1	1	4
y_i	20	15	30	25	10

- a. Compute the sum of squares due to error (SSE). (15)
 b. Compute the coefficient of determination r^2 (R squared). (16)
 c. Compute the sample correlation coefficient. (17)

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#7. The manager of Adam Corporation wants to realize the relationship between the age of a car (x) and the annual maintenance cost (y). Herein, there are samples as follows.

Age of car (years): x	Maintenance cost (\$): y
1	200
1	300
3	600
2	500
2	400
3	800
4	700
5	900
4	1200
5	1000

- Develop the least squares estimated regression equation. (18)
- Test whether the slope is statistically significantly different from 0 at the 5% significance level (yes or no). (19)
- Develop a 95% prediction interval for the maintenance cost for a specific car that is 3 years old. (20)

[以下還有可查詢的資料及表格]

[HINTS]

$$\sqrt{10} \approx 3.162; \sqrt{0.424} \approx 0.651; \sqrt{0.8} \approx 0.894$$

$$\sqrt{8} \approx 2.828; \sqrt{202000} \approx 449.444; \sqrt{20} \approx 4.472$$

$$\sqrt{1.1} \approx 1.049; \sqrt{0.9} \approx 0.949; \sqrt{1.8} \approx 1.342$$

$$\sqrt{202} \approx 14.213; \sqrt{660} \approx 25.690; \sqrt{30} \approx 5.477$$

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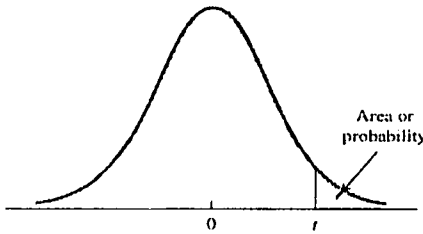
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t distribution



Entries in the table give t values for an area or probability in the upper tail of the t distribution. For example, with 10 degrees of freedom and a .05 area in the upper tail, $t_{.05} = 1.812$.

Degrees of Freedom	Area in Upper Tail					
	.20	.10	.05	.025	.01	.005
1	1.376	3.078	6.314	12.706	31.821	63.656
2	1.061	1.886	2.920	4.303	6.965	9.925
3	.978	1.638	2.353	3.182	4.541	5.841
4	.941	1.533	2.132	2.776	3.747	4.604
5	.920	1.476	2.015	2.571	3.365	4.032
6	.906	1.440	1.943	2.447	3.143	3.707
7	.896	1.415	1.895	2.365	2.998	3.499
8	.889	1.397	1.860	2.306	2.896	3.355
9	.883	1.383	1.833	2.262	2.821	3.250
10	.879	1.372	1.812	2.228	2.764	3.169
11	.876	1.363	1.796	2.201	2.718	3.106
12	.873	1.356	1.782	2.179	2.681	3.055
13	.870	1.350	1.771	2.160	2.650	3.012
14	.868	1.345	1.761	2.145	2.624	2.977