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I. 選擇題 (40分，一題2分)

1. In the case of a good that has no exclusion and no rivalry, private markets fail because

- A) of free-ridership.
- B) this is a natural monopoly.
- C) profit is driven down to zero.
- D) the quantity produced will exceed the social optimum.

2. Many people do not fully insure against risk because

- A) they are risk averse.
- B) the insurance companies are all crooks.
- C) the insurance offered is less than fair.
- D) the insurance offered is more than fair.

3. When considering trade of two goods between two people, if one person has all the endowment of both goods, this allocation

- A) is never on a contract curve.
- B) will result in trade so each person has all of one good.
- C) will result in trade to a equal division of goods between the two people.
- D) is Pareto efficient.

4. Moral hazard occurs when contracts are written in such a way that

- A) the interests of agent and principal converge.
- B) the interests of agent and principal diverge.
- C) agents will wish to maximize the principal's utility.
- D) production and risk-bearing efficiency are achieved.

5. Charging a higher price for a motel room to customers with dogs or cats than to customers with no pets is most likely an example of

- A) first-degree price discrimination.
- B) second-degree price discrimination.
- C) third-degree price discrimination.
- D) actual cost differences.

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6. In a non-cooperative, imperfect information, simultaneous-choice, one-period game, a Nash equilibrium
- A) will never exist.
 - B) will always include dominant strategies.
 - C) will always result in both players taking the same action.
 - D) may not maximize the sum of the firms' profits.
7. Assume health insurance is provided universally by the government. This would
- A) force every taxpayer to bear the costs of adverse selection.
 - B) force every taxpayer to bear the costs of moral hazard.
 - C) force the government to deal with adverse selection problems.
 - D) force foreign governments to deal with moral hazard problems.
8. If the demand curve for a good always has unitary price elasticity, what does this imply about consumer behavior?
- A) Consumers do not react to a price change.
 - B) Consumers will spend a constant total amount on the good.
 - C) Consumers are irrational.
 - D) Consumers do not obey the Law of Demand.
9. The ability of a monopoly to charge a price that exceeds marginal cost depends on
- A) the price elasticity of supply.
 - B) price elasticity of demand.
 - C) slope of the demand curve.
 - D) shape of the marginal cost curve.
10. If the utility function (U) between food (F) and clothing (C) can be represented as $U = \sqrt{F \times C}$, the marginal utility of food equals
- A) $\sqrt{F/C}$.
 - B) $\sqrt{C/F}$.
 - C) $1/2\sqrt{C/F}$.
 - D) $1/2\sqrt{F/C}$.

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11. An increase in the marginal propensity to save from .1 to .2 will cause
- A) an increase in the multiplier and a given change in autonomous consumption (c_0) to have a smaller effect on output.
 - B) an increase in the multiplier and a given change in autonomous consumption (c_0) to have a larger effect on output.
 - C) a reduction in the multiplier and a given change in autonomous consumption (c_0) to have a smaller effect on output.
 - D) a reduction in the multiplier and a given change in autonomous consumption (c_0) to have a larger effect on output.
12. For this question, assume that investment spending depends only on output and no longer depends on the interest rate. Given this information, an increase in the money supply
- A) will cause investment to decrease.
 - B) will cause investment to increase.
 - C) will cause a reduction in the interest rate.
 - D) will have no effect on output or the interest rate.
 - E) will cause an increase in output and have no effect on the interest rate.
13. The natural level of employment (N) will increase when which of the following occurs?
- A) an increase in the markup of prices over costs
 - B) a reduction in unemployment benefits
 - C) an increase in the actual unemployment rate
 - D) all of the above
 - E) none of the above
14. Since approximately 1970, the most stable Phillips-type relationship for the United States has been between which of the following?
- A) the rate of inflation and the change in the unemployment rate
 - B) the unemployment rate and the change in the rate of inflation
 - C) the change in the unemployment rate and the change in the rate of inflation
 - D) the inverse of the unemployment rate and the rate of inflation
 - E) the unemployment rate and the rate of inflation

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15. Suppose there is an increase in the saving rate. This increase in the saving rate will cause an increase in which of the following once the economy reaches its new steady state equilibrium?
- A) growth rate of output
 - B) growth rate of capital
 - C) growth rate of capital per worker
 - D) all of the above
 - E) none of the above
16. Suppose there is a reduction in the saving rate. This decrease in the saving rate will cause a reduction in which of the following once the economy reaches its new steady state equilibrium?
- A) growth rate of output
 - B) growth rate of capital
 - C) growth rate of capital per worker
 - D) all of the above
 - E) none of the above
17. An increase in government spending will have a greater impact on net exports when
- A) the marginal propensity to save is smaller.
 - B) the economy is closed.
 - C) the sensitivity of investment to income is smaller.
 - D) all of the above
 - E) none of the above
18. Part of the reason for the Mexican peso crisis of 1994 was Mexico's decision to
- A) allow the peso to depreciate too rapidly.
 - B) allow the peso to appreciate too rapidly.
 - C) maintain relatively low nominal interest rates in the face of relatively high inflation.
 - D) maintain a roughly fixed nominal exchange rate in the face of relatively high inflation.
 - E) run a very small budget deficit in the face of relatively high inflation.

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19. Which of the following will cause an increase in the debt-to-GDP ratio?

- A) a reduction in the real interest rate
- B) a reduction in the ratio of the primary deficit to GDP
- C) a reduction in the growth rate of output
- D) all of the above

20. Arguments for placing restraints on policy makers fall into which of the following?

- A) policy makers understand completely how the economy operates
- B) policy makers have good intentions, but end up doing more harm than good
- C) policy makers do what is best for them, not necessarily what is best for the country
- D) all of the above
- E) both B and C

II. 非選擇題 (60分)

1. Wonderland Gas, Inc., is a natural gas supplier. The firm faces the demand schedule shown in the table below and cannot price discriminate. The company's fixed cost is \$2,000 per month and its marginal cost is constant at \$5 per thousand of cubic feet. The government plans to impose a marginal cost pricing rule on the company. (共20分)

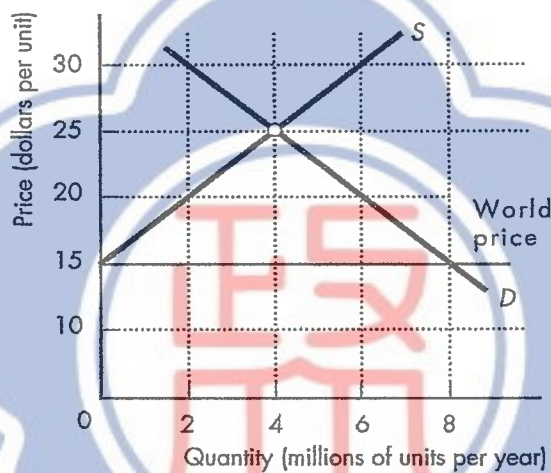
- (a) What will be the price of natural gas supplied by Wonderland Gas? How many cubic feet will the company sell? What will be the firm's economic profit per month? (6分)
- (b) How does the regulation affect total surplus? (8分)
- (c) Is the regulation in the social interest? Explain. (6分)

Price (dollars per thousand cubic feet)	Quantity demanded (thousands of cubic feet per day)
5	400
15	300
25	200
35	100
45	0

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2. The figure below shows the domestic supply of and domestic demand for an imported good. The world price is \$15 per unit. (共 20 分)

- Is this country more likely to be the U.S. or Taiwan? Why? (4 分)
- At the world price of \$15 per unit, what is the quantity imported? (3 分)
- If the government imposes a tariff of \$5 per unit, what is the domestic consumption and domestic production, and the quantity imported? (4 分)
- How much revenue does the government collect with a tariff of \$5 per unit? (3 分)
- How much is the deadweight loss? Indicate the sources of this deadweight loss. (6 分)



3. In the economy of Wonderland, the commercial banks have deposits of \$500 billion. Their reserves are \$50 billion, 80 percent of which is in deposits with the Central Bank. There is \$20 billion in Central Bank notes outside the banks, and there are no coins. (20 分，一題 4 分)

- What is the monetary base?
- If all the deposits are money, what is the total quantity of money?
- What is the banks' reserve ratio?
- What is the currency drain as a percentage of the quantity of deposits?
- What is the value of the money multiplier? Show your calculation.

備

註

- 作答於試題上者，不予計分。
- 試題請隨卷繳交。

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一、(20%)甲公司 X5 年 10 月 28 日以每股\$58 買回面額\$10 之庫藏股票 50,000 股，X5 年 11 月 22 日以每股\$60 賣出 15,000 股之庫藏股票，X5 年 12 月 27 日以每股\$40 賣出 20,000 股之庫藏股票。甲公司採用成本法記錄相關庫藏股票之交易。

試作：

- (1) 甲公司 X5 年 10 月 28 日、11 月 22 日與 12 月 27 日之庫藏股票交易分錄。
- (2) 甲公司 X5 年底庫藏股票科目餘額。

二、(20%)

(1) 乙公司向丁租賃公司承租 1 台機器設備，合約的內容符合融資租賃。乙公司在 6 年的租期中，每年年初須支付租金\$200,000，該租金包含每年機器設備的維修、保險與稅金\$24,000。乙公司為取得該租賃發生的原始直接成本為\$8,000。承租人的增額借款利率為 8%，出租人的隱含利率為 6%，乙公司得知隱含利率。

試問：乙公司應認列使用權資產的金額為何？(P5,8%=3.9927, P5,6%=4.2124)

(2) 乙公司 X3 年初按公允價值\$1,205,728 出售一部機器給丁公司，該機器原始成本為\$2,000,000，累計折舊\$1,000,000，剩餘耐用年限 5 年。乙公司立即簽約租回，租期 3 年，每年 1 月 1 日給付租金\$140,000，租期屆滿機器歸還丁公司，期滿估計殘值為\$200,000，且全數由乙公司保證，但乙公司預期租期屆滿時機器之價值僅\$80,000。已知乙公司之增額借款利率為 5%，丁公司之隱含利率為 4%，且為乙公司所知。若乙公司對該設備之移轉符合銷售之規定。

試問：乙公司 X3 年應認列處分機器損益為何？

(p3,5%=0.8638, p3,4%=0.8890 ; P3,5%=2.7232, P3,4%=2.7751)

三、(10%)丙公司 X5 年度會計稅前淨利為\$800,000，除下列項目外並無其他影響會計稅前淨利與課稅所得差異之事項：

- (1) X5 年底資產負債表上產品保證負債較上一年度增加\$60,000；
- (2) 一機器設備 X5 年初帳面金額為\$200,000，課稅基礎為\$160,000；X5 年底機器設備帳面金額為\$150,000，課稅基礎為\$100,000。若各年度稅率均為 20%。

試做：丙公司 X5 年底有關所得稅分錄

四、(16%)A 公司 X1 年至 X3 年帳列銷貨收入分別為\$500,000、\$600,000、\$700,000，帳列銷貨成本分別為\$340,000、\$450,000、\$520,000，帳列期末存貨分別為\$8,000、\$6,000、\$3,000。若 X1 年期末存貨低估\$2,000、X2 年期末存貨高估\$3,000、X3 年期末存貨低估\$1,000。

試做：(請附計算過程，並請計算至小數點以下兩位。)

- (1) 該公司 X1、X2、X3 年之正確營業淨利及毛利率。
- (2) 該公司 X2、X3 年之正確存貨周轉率。

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五、(14%)B 公司 X5 年相關資料如下：

本期淨利\$500,000

所得稅費用\$90,000

折舊費用\$68,000

利息費用\$50,000

利息收入\$30,000

應收帳款減少\$200,000

應收利息增加\$6,000

存貨增加\$95,000

應付帳款減少\$150,000

應付利息減少\$5,000

應付所得稅增加\$8,000

預收貨款增加\$40,000

處分設備損失\$30,000

資本支出增加\$2,000,000

發放股利\$500,000

公司增資發行新股收現\$500,000

試做：以改良式間接法編製 B 公司 X5 年度營業活動之現金流量表。

六、(20%)C 公司於 X5 年 1 月 1 日發行 500 張，每張面額 10,000 元，票面利率 4%，每半年付息一次（每年付息日為 1 月 1 日、7 月 1 日）之 3 年期公司債，發行時市場利率為 3%。

試做：

(1) 計算該公司債之每張發行價格。（計算至整數，小數點以後四捨五入）

(2) 請以有效利率法做該公司債 X5 年付息與攤銷折溢價相關分錄。

(3) C 公司於 X6 年 1 月 1 日付息後，以每張 103 價格贖回 50 張債券，做債券贖回分錄，以及 X6 年 7 月 1 日付息與攤銷折溢價相關分錄。

備註

一、作答於試題上者，不予計分。
二、試題請隨卷繳交。

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[說明]

1. 請詳細回答以下全部問題。
2. 若求解過程需要，可設定「合理」的假設，以利作答。
3. 查表過程中，若本試題所提供之統計各表並無其對應之數值，請使用最接近之數值代替。

Question 1 (10分)

假設隨機變數 X 之機率分配為 $N(10,25)$ 。試求 C 值，可使 $P(X>C)=2P(X<C)$ 。

Question 2 (10分, 5/5)

X_1, X_2, \dots, X_n 是由平均數為 μ ，變異數為 σ^2 之母體中所抽出的隨機樣本，以下是兩個 μ 的估計量：

$$(1) \hat{\mu}_1 = \frac{X_1 + X_n}{2}$$

$$(2) \hat{\mu}_2 = \frac{X_1 + X_2 + \dots + X_n}{n}$$

請分別依據不偏性與有效性來決定何者是 μ 比較優良的估計量。

Question 3 (15分, 5/5/5)

假設隨機抽出兩組獨立樣本 $n_1 = 64$ 與 $n_2 = 75$ ，並計算其 $\mu_1 - \mu_2$ 之 95% 信賴區間為 (550, 1120)，試回答以下問題：

- (1) $\mu_1 - \mu_2$ 之點估計值 = ?
- (2) $\mu_1 - \mu_2$ 之 95% 誤差界限 = ?
- (3) $\mu_1 - \mu_2$ 之 90% 信賴區間 = ?

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Question 4 (10 分, 5/5)

下表為抽訪某大學大一同學每月打工收入之調查結果：

	男同學	女同學
樣本數	14	16
樣本平均數	19800	19300
樣本標準差	1000	1400

假設兩母體均為常態分配，試以 $\alpha = 0.05$ 檢定以下問題：

- (1) 是否兩母體的變異程度相同？
- (2) 是否男同學的打工收入較高？

Question 5 (15 分, 7/8)

某一健身房想要了解是否會因為時段的不同而影響來店的客數。他們記錄了四家分店在過去一週的來客數資料如下表所示：

	A 分店	B 分店	C 分店	D 分店
早上時段	400	360	180	260
下午時段	180	240	300	400
晚上時段	380	500	420	460

- (1) 請以 $\alpha = 0.05$ 檢定不同時段對來客數的影響是否具有顯著差異。
- (2) 請以 $\alpha = 0.05$ 檢定不同分店對來客數的影響是否具有顯著差異。

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Question 6 (20分, 6/7/7)

假設我們有兩類基金投資的獲利報酬率資料如下表所示：

獲利報酬率	-10~-5	-5~0	0~5	5~10	10~15
生技類	5	4	14	12	15
能源類	14	15	9	7	5

- (1) 請以 $\alpha = 0.05$ 檢定兩類基金獲利表現的分配相同。
- (2) 請以 $\alpha = 0.05$ 檢定兩類基金獲利表現都為均等分配。
- (3) 請以 $\alpha = 0.05$ 檢定若當兩類基金合併計算後，獲利表現為均等分配。

Question 7 (20分, 5/5/5/5)

由 15 組的 X, Y, Z 樣本資料計算迴歸模型 $Y = \alpha + \beta X + \gamma Z + \varepsilon$ 之變異數分析表，得到結果如下：

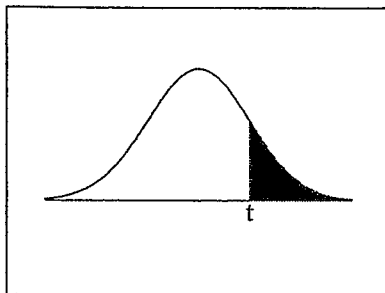
變異來源	平方和	自由度	平均平方和	F 值
迴歸	a		10.429	e
隨機	b		d	
總和	27.026	c		

- (1) 請問上表中 a, b, c, d, e 之值各為多少？
- (2) 請以 $\alpha = 0.05$ ，檢定 β 與 γ 是否同時為 0？
- (3) 請問此迴歸方程式的判定係數 = ？
- (4) 試求 σ^2 的 99% 信賴區間 = ？

備註
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t-Distribution Table

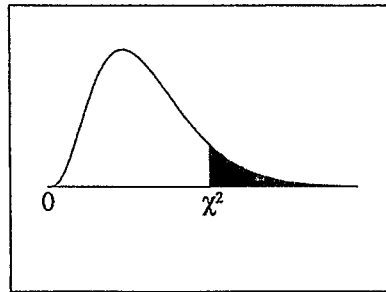


The shaded area is equal to α for $t = t_{\alpha}$.

df	$t_{.100}$	$t_{.050}$	$t_{.025}$	$t_{.010}$	$t_{.005}$
1	3.078	6.314	12.706	31.821	63.657
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.440	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.860	2.306	2.896	3.355
9	1.383	1.833	2.262	2.821	3.250
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106
12	1.356	1.782	2.179	2.681	3.055
13	1.350	1.771	2.160	2.650	3.012
14	1.345	1.761	2.145	2.624	2.977
15	1.341	1.753	2.131	2.602	2.947
16	1.337	1.746	2.120	2.583	2.921
17	1.333	1.740	2.110	2.567	2.898
18	1.330	1.734	2.101	2.552	2.878
19	1.328	1.729	2.093	2.539	2.861
20	1.325	1.725	2.086	2.528	2.845
21	1.323	1.721	2.080	2.518	2.831
22	1.321	1.717	2.074	2.508	2.819
23	1.319	1.714	2.069	2.500	2.807
24	1.318	1.711	2.064	2.492	2.797
25	1.316	1.708	2.060	2.485	2.787
26	1.315	1.706	2.056	2.479	2.779
27	1.314	1.703	2.052	2.473	2.771
28	1.313	1.701	2.048	2.467	2.763
29	1.311	1.699	2.045	2.462	2.756
30	1.310	1.697	2.042	2.457	2.750
32	1.309	1.694	2.037	2.449	2.738
34	1.307	1.691	2.032	2.441	2.728
36	1.306	1.688	2.028	2.434	2.719
38	1.304	1.686	2.024	2.429	2.712
∞	1.282	1.645	1.960	2.326	2.576

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Chi-Square Distribution Table



The shaded area is equal to α for $\chi^2 = \chi^2_{\alpha}$.

df	$\chi^2_{.995}$	$\chi^2_{.990}$	$\chi^2_{.975}$	$\chi^2_{.950}$	$\chi^2_{.900}$	$\chi^2_{.100}$	$\chi^2_{.050}$	$\chi^2_{.025}$	$\chi^2_{.010}$	$\chi^2_{.005}$
1	0.000	0.000	0.001	0.004	0.016	2.706	3.841	5.024	6.635	7.879
2	0.010	0.020	0.051	0.103	0.211	4.605	5.991	7.378	9.210	10.597
3	0.072	0.115	0.216	0.352	0.584	6.251	7.815	9.348	11.345	12.838
4	0.207	0.297	0.484	0.711	1.064	7.779	9.488	11.143	13.277	14.860
5	0.412	0.554	0.831	1.145	1.610	9.236	11.070	12.833	15.086	16.750
6	0.676	0.872	1.237	1.635	2.204	10.645	12.592	14.449	16.812	18.548
7	0.989	1.239	1.690	2.167	2.833	12.017	14.067	16.013	18.475	20.278
8	1.344	1.646	2.180	2.733	3.490	13.362	15.507	17.535	20.090	21.955
9	1.735	2.088	2.700	3.325	4.168	14.684	16.919	19.023	21.666	23.589
10	2.156	2.558	3.247	3.940	4.865	15.987	18.307	20.483	23.209	25.188
11	2.603	3.053	3.816	4.575	5.578	17.275	19.675	21.920	24.725	26.757
12	3.074	3.571	4.404	5.226	6.304	18.549	21.026	23.337	26.217	28.300
13	3.565	4.107	5.009	5.892	7.042	19.812	22.362	24.736	27.688	29.819
14	4.075	4.660	5.629	6.571	7.790	21.064	23.685	26.119	29.141	31.319
15	4.601	5.229	6.262	7.261	8.547	22.307	24.996	27.488	30.578	32.801
16	5.142	5.812	6.908	7.962	9.312	23.542	26.296	28.845	32.000	34.267
17	5.697	6.408	7.564	8.672	10.085	24.769	27.587	30.191	33.409	35.718
18	6.265	7.015	8.231	9.390	10.865	25.989	28.869	31.526	34.805	37.156
19	6.844	7.633	8.907	10.117	11.651	27.204	30.144	32.852	36.191	38.582
20	7.434	8.260	9.591	10.851	12.443	28.412	31.410	34.170	37.566	39.997
21	8.034	8.897	10.283	11.591	13.240	29.615	32.671	35.479	38.932	41.401
22	8.643	9.542	10.982	12.338	14.041	30.813	33.924	36.781	40.289	42.796
23	9.260	10.196	11.689	13.091	14.848	32.007	35.172	38.076	41.638	44.181
24	9.886	10.856	12.401	13.848	15.659	33.196	36.415	39.364	42.980	45.559
25	10.520	11.524	13.120	14.611	16.473	34.382	37.652	40.646	44.314	46.928
26	11.160	12.198	13.844	15.379	17.292	35.563	38.885	41.923	45.642	48.290
27	11.808	12.879	14.573	16.151	18.114	36.741	40.113	43.195	46.963	49.645
28	12.461	13.565	15.308	16.928	18.939	37.916	41.337	44.461	48.278	50.993
29	13.121	14.256	16.047	17.708	19.768	39.087	42.557	45.722	49.588	52.336
30	13.787	14.953	16.791	18.493	20.599	40.256	43.773	46.979	50.892	53.672
40	20.707	22.164	24.433	26.509	29.051	51.805	55.758	59.342	63.691	66.766
50	27.991	29.707	32.357	34.764	37.689	63.167	67.505	71.420	76.154	79.490
60	35.534	37.485	40.482	43.188	46.459	74.397	79.082	83.298	88.379	91.952
70	43.275	45.442	48.758	51.739	55.329	85.527	90.531	95.023	100.425	104.215
80	51.172	53.540	57.153	60.391	64.278	96.578	101.879	106.629	112.329	116.321
90	59.196	61.754	65.647	69.126	73.291	107.565	113.145	118.136	124.116	128.299
100	67.328	70.065	74.222	77.929	82.358	118.498	124.342	129.561	135.807	140.169

考試科目	統計學	系所別	財政學系	考試時間	2月11日(二)第四節
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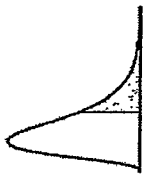
F-Table Upper Tail Area of .025

Numerator df

	1	2	3	4	5	6	7	8	9	10	11	12	15	20	24	30	60	120	∞
1	648	799	864	899	921	937	948	956	963	968	973	976	984	993	997	1001	1009	1014	1018
2	38.5	39.0	39.1	39.2	39.3	39.3	39.3	39.3	39.3	39.4	39.4	39.4	39.4	39.4	39.4	39.4	39.4	39.4	39.5
3	17.4	16.0	15.4	15.1	14.8	14.7	14.6	14.5	14.4	14.4	14.3	14.3	14.2	14.1	14.1	14.0	13.9	13.9	13.9
4	12.2	10.6	9.9	9.6	9.3	9.2	9.0	8.9	8.9	8.8	8.7	8.7	8.6	8.5	8.5	8.4	8.3	8.3	8.2
5	10.0	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.68	6.62	6.57	6.52	6.43	6.33	6.28	6.23	6.12	6.07	6.02
6	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.52	5.46	5.41	5.37	5.27	5.17	5.12	5.07	4.96	4.90	4.85
7	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.90	4.82	4.76	4.71	4.67	4.57	4.47	4.41	4.36	4.25	4.20	4.14
8	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36	4.30	4.24	4.20	4.10	4.00	3.95	3.89	3.78	3.73	3.67
9	7.21	5.71	5.08	4.72	4.48	4.32	4.20	4.10	4.03	3.96	3.91	3.87	3.77	3.67	3.61	3.56	3.45	3.39	3.33
10	6.94	5.46	4.83	4.47	4.24	4.07	3.95	3.85	3.78	3.72	3.66	3.62	3.52	3.42	3.37	3.31	3.20	3.14	3.08
11	6.72	5.26	4.63	4.28	4.04	3.88	3.76	3.66	3.59	3.53	3.47	3.43	3.33	3.23	3.17	3.12	3.00	2.94	2.88
12	6.55	5.10	4.47	4.12	3.89	3.73	3.61	3.51	3.44	3.37	3.32	3.28	3.18	3.07	3.02	2.96	2.85	2.79	2.72
13	6.41	4.97	4.35	4.00	3.77	3.60	3.48	3.39	3.31	3.25	3.20	3.15	3.05	2.95	2.89	2.84	2.72	2.66	2.60
14	6.30	4.86	4.24	3.89	3.66	3.50	3.38	3.29	3.21	3.15	3.09	3.05	2.95	2.84	2.79	2.73	2.61	2.55	2.49
15	6.20	4.77	4.15	3.80	3.58	3.41	3.29	3.20	3.12	3.06	3.01	2.96	2.86	2.76	2.70	2.64	2.52	2.46	2.40
16	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	3.05	2.99	2.93	2.89	2.79	2.68	2.63	2.57	2.45	2.38	2.32
17	6.04	4.62	4.01	3.66	3.44	3.28	3.16	3.06	2.98	2.92	2.87	2.82	2.72	2.62	2.56	2.50	2.38	2.32	2.25
18	5.98	4.56	3.95	3.61	3.38	3.22	3.10	3.01	2.93	2.87	2.81	2.77	2.67	2.56	2.50	2.44	2.32	2.26	2.19
19	5.92	4.51	3.90	3.56	3.33	3.17	3.05	2.96	2.88	2.82	2.76	2.72	2.62	2.51	2.45	2.39	2.27	2.20	2.13
20	5.87	4.46	3.86	3.51	3.29	3.13	3.01	2.91	2.84	2.77	2.72	2.68	2.57	2.46	2.41	2.35	2.22	2.16	2.09
21	5.83	4.42	3.82	3.48	3.25	3.09	2.97	2.87	2.80	2.73	2.68	2.64	2.53	2.42	2.37	2.31	2.18	2.11	2.04
22	5.79	4.38	3.78	3.44	3.22	3.05	2.93	2.84	2.76	2.70	2.65	2.60	2.50	2.39	2.33	2.27	2.14	2.08	2.00
23	5.75	4.35	3.75	3.41	3.18	3.02	2.90	2.81	2.73	2.67	2.62	2.57	2.47	2.36	2.30	2.24	2.11	2.04	1.97
24	5.72	4.32	3.72	3.38	3.15	2.99	2.87	2.78	2.70	2.64	2.59	2.54	2.44	2.33	2.27	2.21	2.08	2.01	1.94
25	5.69	4.29	3.69	3.35	3.13	2.97	2.85	2.75	2.68	2.61	2.56	2.51	2.41	2.30	2.24	2.18	2.05	1.98	1.91
26	5.66	4.27	3.67	3.33	3.10	2.94	2.82	2.73	2.65	2.59	2.54	2.49	2.39	2.28	2.22	2.16	2.03	1.95	1.88
30	5.57	4.18	3.59	3.25	3.03	2.87	2.75	2.65	2.57	2.51	2.46	2.41	2.31	2.20	2.14	2.07	1.94	1.87	1.79
40	5.42	4.05	3.46	3.13	2.90	2.74	2.62	2.53	2.45	2.39	2.33	2.29	2.18	2.07	2.01	1.94	1.80	1.72	1.64
60	5.29	3.93	3.34	3.01	2.79	2.63	2.51	2.41	2.33	2.27	2.22	2.17	2.06	1.94	1.88	1.82	1.67	1.58	1.48
120	5.15	3.80	3.23	2.89	2.67	2.52	2.39	2.30	2.22	2.16	2.10	2.05	1.94	1.82	1.76	1.69	1.53	1.43	1.31
∞	5.02	3.69	3.12	2.79	2.57	2.41	2.29	2.19	2.11	2.05	1.99	1.94	1.83	1.71	1.64	1.57	1.39	1.27	1.00

Denominator df

考試科目		統計學												系所別	財政學系	考試時間	2月11日(二)第四節			
F-Table Upper Tail Area of .05		Numerator df																		
		1	2	3	4	5	6	7	8	9	10	11	12	15	20	24	30	60	120	∞
1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	240.5	241.9	243.0	243.9	245.9	248.0	249.1	250.1	252.2	253.3	254.3	
2	18.5	19.0	19.2	19.2	19.3	19.3	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.5	19.5	19.5	19.5	19.5
3	10.1	9.6	9.3	9.1	9.0	8.9	8.9	8.8	8.8	8.8	8.8	8.7	8.7	8.7	8.6	8.6	8.6	8.5	8.5	8.5
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.94	5.91	5.86	5.80	5.77	5.75	5.69	5.66	5.63	5.63
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.70	4.68	4.62	4.56	4.53	4.50	4.43	4.40	4.37	4.37
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.03	4.00	3.94	3.87	3.84	3.81	3.74	3.70	3.67	3.67
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.60	3.57	3.51	3.44	3.41	3.38	3.30	3.27	3.23	3.23
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.31	3.28	3.22	3.15	3.12	3.08	3.01	2.97	2.93	2.93
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.10	3.07	3.01	2.94	2.90	2.86	2.79	2.75	2.71	2.71
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.94	2.91	2.85	2.77	2.74	2.70	2.62	2.58	2.54	2.54
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.82	2.79	2.72	2.65	2.61	2.57	2.49	2.45	2.40	2.40
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.72	2.69	2.62	2.54	2.51	2.47	2.38	2.34	2.30	2.30
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.63	2.60	2.53	2.46	2.42	2.38	2.30	2.25	2.21	2.21
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.57	2.53	2.46	2.39	2.35	2.31	2.22	2.18	2.13	2.13
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.51	2.48	2.40	2.33	2.29	2.25	2.16	2.11	2.07	2.07
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.46	2.42	2.35	2.28	2.24	2.19	2.11	2.06	2.01	2.01
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.41	2.38	2.31	2.23	2.19	2.15	2.06	2.01	1.96	1.96
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.37	2.34	2.27	2.19	2.15	2.11	2.02	1.97	1.92	1.92
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38	2.34	2.31	2.23	2.16	2.11	2.07	1.98	1.93	1.88	1.88
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35	2.31	2.28	2.20	2.12	2.08	2.04	1.95	1.90	1.84	1.84
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32	2.28	2.25	2.18	2.10	2.05	2.01	1.92	1.87	1.81	1.81
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.30	2.26	2.23	2.15	2.07	2.03	1.98	1.89	1.84	1.78	1.78
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.27	2.24	2.20	2.13	2.05	2.01	1.96	1.86	1.81	1.76	1.76
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.25	2.22	2.18	2.11	2.03	1.98	1.94	1.84	1.79	1.73	1.73
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.24	2.20	2.16	2.09	2.01	1.96	1.92	1.82	1.77	1.71	1.71
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27	2.22	2.18	2.15	2.07	1.99	1.95	1.90	1.80	1.75	1.69	1.69
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.16	2.13	2.09	2.01	1.93	1.89	1.84	1.74	1.68	1.62	1.62
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.08	2.04	2.00	1.92	1.84	1.79	1.74	1.64	1.58	1.51	1.51
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	1.99	1.95	1.92	1.84	1.75	1.70	1.65	1.53	1.47	1.39	1.39
120	3.92	3.07	2.68	2.45	2.29	2.18	2.09	2.02	1.96	1.91	1.87	1.83	1.75	1.66	1.61	1.55	1.43	1.35	1.25	1.25
∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88	1.83	1.79	1.75	1.67	1.57	1.52	1.46	1.32	1.22	1.00	1.00



Denominator df

考試科目	財政學	系所別	財政學系	考試時間	2 月 11 日(二) 第四節
<ol style="list-style-type: none"> 1. (20%) Explain why points on a utility possibility curve represent efficient allocations of resources. Why must the utility possibility curve be downward sloping? Draw a utility possibility curve and show how it is possible to achieve efficiency by moving from a point within the curve and the axes to a point on the curve. 2. (20%) What does Harberger's analysis tell us about how the burden of the corporate tax is shared between capital inside and outside the corporate sector? Under what conditions might labor bear a portion of the corporate tax burden? 3. (20%) Explain how corrective taxes and subsidies can be used to internalize an externality. 4. (20%) Show and Explain the difference between general grants and categorical grants. Under what circumstance will they have the same impact? In that case, will one have an advantage over the other? 5. (20%) Suppose the government gave away heating oil free to eligible low-income citizens. Use a graphic analysis to show the excess burden in the market for this good. Under what circumstances will the subsidy cause the market price of fuel oil to increase? 					
備註	<ol style="list-style-type: none"> 一、作答於試題上者，不予計分。 二、試題請隨卷繳交。 				