

考試科目	經濟學	系所別	財政學系	考試時間	2月5日(四)第二節
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I. 選擇題 (40分，一題2分)

1. When majority rule voting is used to determine whether to purchase a public good,
 - A) the efficient outcome is assured.
 - B) the median voter gets her way.
 - C) the sum of the marginal benefits must equal marginal cost.
 - D) the marginal benefit of the good to the median voter equals the good's marginal cost.
2. The rate of return on bonds is lower than on stocks over time because
 - A) bond holders cannot diversify.
 - B) bonds have a lower standard deviation in returns.
 - C) stocks have less non-diversifiable risks than bonds.
 - D) bonds are subject to more random risks than stocks.
3. The First Theorem of Welfare Economics can be expressed as
 - A) the competitive equilibrium results only when no transactions costs exist.
 - B) the competitive equilibrium does not involve reallocation of endowments.
 - C) any efficient allocations can be achieved by competition.
 - D) the competitive equilibrium is efficient.
4. Monitoring is often used by firms in an attempt to decrease
 - A) shirking.
 - B) piece rates.
 - C) adverse selection.
 - D) signaling.
5. Airlines offer lower prices to vacationers than to business travelers because
 - A) of government regulations requiring them to do so.
 - B) business travelers do not care at all about costs.
 - C) business travelers are less flexible in their travel plans than vacationers are.
 - D) airlines know that business travelers enjoy flying more than vacationers do.

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6. When neither player has a dominant strategy,
- A) game theory will not provide information.
 - B) no Nash-Equilibrium exists.
 - C) at least one Nash-Equilibrium exists.
 - D) the game cannot be analyzed.
7. With asymmetric information firms might be reluctant to improve the quality of their products because
- A) it costs them more to produce the better quality product.
 - B) they are not able to completely capture the benefits of the improvement.
 - C) consumers do not value the better product.
 - D) consumers are better informed about the product and value the new product less.
8. If the price elasticity of demand for a good is less than one in absolute value, economists would characterize consumers of this good
- A) as not very sensitive to price.
 - B) as not very sensitive to the quantity they demand.
 - C) as very sensitive to price.
 - D) as elastic.
9. If a firm is able to influence its price,
- A) it is a monopoly.
 - B) it has constant marginal revenue.
 - C) it sells its output at a constant price.
 - D) it faces a downward-sloping demand curve.
10. People view alcohol and marijuana as perfect substitutes. This means that
- A) individuals will consume either alcohol or marijuana, but not both, regardless of price.
 - B) as the price of alcohol decreases, marijuana use decreases.
 - C) the marginal utility for alcohol and marijuana is constant.
 - D) Both B and C.
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11. An economy is in equilibrium when which of the following conditions is satisfied?

- A) consumption equals saving
- B) output equals consumption
- C) total saving equals zero
- D) total saving equals investment
- E) all of the above

12. The IS curve will *not* shift when which of the following occurs?

- A) a reduction in government spending
- B) a reduction in the interest rate
- C) a reduction in consumer confidence
- D) all of the above
- E) none of the above

13.

Which of the following represents the participation rate?

- A) the ratio of the number employed to the size of the labor force
- B) the ratio of the number employed to the civilian noninstitutional population
- C) the ratio of the labor force to the civilian noninstitutional population
- D) the ratio of the labor force to the total number of employed and unemployed workers

14. Suppose policy makers overestimate the natural rate of unemployment. In situations like these, policy makers will likely implement policies that result in

- A) less unemployment than necessary.
- B) an unemployment rate that is "too low."
- C) a lower inflation rate than necessary.
- D) a steadily increasing inflation rate.
- E) overly expansionary monetary and fiscal policy.

15. Suppose a liquidity trap situation exists. Which of the following is most likely to occur if taxes are cut?

- A) no change in output and no change in the interest rate
- B) an increase in output and an increase in the interest rate
- C) an increase in output and little change in the interest rate
- D) an increase in output and a reduction in the interest rate
- E) none of the above

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16. Which of the following will cause an increase in the steady-state growth rate of capital?

- A) an increase in the saving rate
- B) an increase in the population growth rate
- C) a temporary increase in technological progress
- D) all of the above
- E) none of the above

17. The evidence suggests that in rich countries, a depreciation

- A) immediately improves the trade balance.
- B) eventually improves the trade balance.
- C) first improves, but then worsens the trade balance.
- D) has no effect on the trade balance.
- E) none of the above

18. Which of the following is an advantage of a common currency in Europe?

- A) Each country could conduct its own, independent monetary policy.
- B) Exchange rate uncertainty within the common currency area would be eliminated.
- C) Each country could conduct its own, independent fiscal policy.
- D) all of the above
- E) none of the above

19. The debt-ratio is the ratio of the debt to

- A) government spending.
- B) saving.
- C) taxes.
- D) personal disposable income.
- E) GDP.

20. A "conservative" central banker cares

- A) less about inflation and more about unemployment than the government.
- B) more about economic growth and less about inflation.
- C) more about inflation and less about unemployment than the government.
- D) less about economic growth and more about inflation.

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II. 非選擇題 (60 分)

- A country which does not tax cigarettes is considering the introduction of a \$0.40 per pack tax on consumers. The economic advisors to the country estimate the supply and demand curves for cigarettes as:

$$Q_D = 140,000 - 25,000P \quad \text{and} \quad Q_S = 20,000 + 75,000P,$$

where Q = daily sales in packs of cigarettes, and P = price per pack. The country has hired you to provide the following information regarding the cigarette market and the proposed tax. (共 20 分)

 - What are the equilibrium price and quantity in the current environment with no tax? (6 分)
 - What price and quantity would prevail after the imposition of the tax? What portion of the tax would be borne by buyers and sellers respectively? (8 分)
 - Calculate the deadweight loss from the tax. What tax revenue will be generated? Could the tax be justified despite the deadweight loss? (6 分)
- The market for an industrial chemical has a single dominant firm and a competitive fringe comprised of many firms that behave as price takers. The dominant firm has recently begun behaving as a price leader, setting price while the competitive fringe follows. The market demand curve and competitive fringe supply curve are given below. Marginal cost for the dominant firm is \$0.75 per gallon.

$$Q_M = 140,000 - 32,000P \quad \text{and} \quad Q_F = 60,000 + 8,000P,$$

where Q_M = market quantity demanded, and Q_F = the supply of the competitive fringe. Quantities are measured in gallons per week, and price is measured as a price per gallon. (共 20 分，每小題 10 分)

 - Determine the price and output that would prevail in the market under the conditions described above. Identify output for the dominant firm as well as the competitive fringe.
 - Assume that the market demand curve shifts rightward by 40,000 units. Show that the dominant firm is indeed a price leader. What output (leader and follower) and market price will prevail after the change in demand?
- The price of a computer in the United States is \$1,000. The price of a car in Germany is 10,000 euros. The current exchange rate is 0.9 euros per dollar. (20 分，每小題 5 分)

 - If a computer is exported from the United States to Germany with no barriers to trade, what will be the price of the computer in Germany?
 - If a car is imported to the United States from Germany with no barriers to trade, what will be the price of the car in the United States?
 - Suppose the dollar appreciates by 10 percent against the euro. How will the price of a computer exported from the United States change in Germany?
 - Suppose the dollar appreciates by 10 percent against the euro. How will the price of a car imported to the United States from Germany change in the United States?

備

註

- 作答於試題上者，不予計分。
- 試題請隨卷繳交。

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(答案若有小數，請四捨五入取至小數點第二位，未列出計算過程者，不予計分)

一、(10%)

A 公司 2024 年初以每股\$90 發行面額\$10 之可轉換特別股 20,000 股，每股特別股可轉換為面額\$10 之普通股 2 股，另支付發行成本\$100,000。2025 年 9 月 1 日為促使該可轉換特別股能提早轉換，A 公司將轉換條件修改為每股特別股可轉換為面額\$10 之普通股 3 股及獲得現金\$6。2025 年 12 月 1 日普通股市價\$76 時，有 5,000 股可轉換特別股行使轉換。

試作：A 公司有關可轉換特別股之相關分錄。

二、(15%)

B 公司於 2024 年 7 月 1 日在拍賣中以\$7,200,000 收購乙公司之若干資產，因無法個別辨認各項資產之取得成本，擬按公允價值比例分攤。各項資產於取得日之公允價值如下：

土地 \$1,362,500

建築 \$3,725,000

機器設備 \$937,500

運輸設備 \$875,000

試作：

(1)按相對公允價值法分攤購買價格，機器設備及運輸設備之入帳成本各為若干？

(2)假設機器設備之估計耐用年限為 6 年，殘值\$80,000，採年數合計法提列折舊；運輸設備之估計耐用年限為 4 年，殘值\$5,000，採直線法提列折舊。試求 2025 年 12 月 31 日機器設備及運輸設備之帳面價值各為若干？

(3)甲公司於 2026 年底以\$700,000 出售機器設備，試計算出售損益（請註明利益或損失）？

三、(25%)

C 公司 2024 年度應收帳款餘額\$640,000，應收帳款的備抵損失餘額為貸餘\$28,300。該公司 2025 年度賒銷商品\$7,175,000，發生銷貨退回與折讓\$87,500，應收帳款收現\$6,725,000，沖銷無法收回之應收帳款\$35,000，收回已沖銷之應收帳款\$5,000。該公司採帳齡分析法估計 2025 年預期信用減損損失為\$60,750。試作：

(1)計算 2025 年 12 月 31 日結帳前應收帳款餘額。

(2)計算 2025 年 12 月 31 日結帳前備抵損失餘額。

(3)編製 2025 年認列預期信用減損損失之分錄。

(4)計算 2025 年應收帳款週轉率。

(5)計算 2025 年 12 月 31 日應收帳款淨變現價值。

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四、(25%)

D 公司存貨採定期盤存制，2025 年帳載期初存貨為\$400,000，2024 年度銷貨收入總額\$1,200,000，銷貨折讓\$40,000，銷貨運費\$48,000，進貨總額\$3,052,000，進貨折讓\$88,000，進貨運費\$84,000。2025 年底內部稽核人員盤點倉庫存貨，盤得庫存存貨成本為\$420,000，經以去年營業毛利率，採毛利法估算之存貨成本為\$580,000，認為倉庫存貨短少\$160,000。倉庫管理員指稱存貨並未短少，盤點倉庫存貨並未計入一批起運點交貨之在途進貨商品\$30,000，且 2024 年底存貨盤點時，因部分存貨重複盤點，致 2024 年營業毛利率虛增 25%，並使 2025 年帳載期初存貨高估。

試作：

- (1)若 2025 年底存貨無短少，則 2025 年 D 公司正確期末存貨成本為多少？
- (2)內部稽核人員採用 2024 年營業毛利率為多少？
- (3)若 2025 年底存貨無短少，D 公司僅銷售一項產品，且 2025 年進貨成本與商品售價均與往年相同，則
 - (a)2025 年銷貨成本為多少？(b)2024 年底存貨重複盤點金額為多少？
- (4)編製 2025 年底發現 2024 年底存貨重複盤點之更正分錄

五、(20%)

E 公司於 2025 年 12 月 31 日按市場利率 3.8%發行面額\$3,000,000，票面利率 5%，每年 12 月 31 日付息，三年期之公司債，取得現金\$ 3,100,284，並另支付發行該公司債之相關發行成本\$ 17,031，若考慮發行成本後，該公司債之有效利率為 4%。E 公司發行之公司債全數由 F 公司買入，並分類為按攤銷後成本衡量之金融資產。該債券投資未發生減損，2025 年、2026 年及 2027 年年底，F 公司估計之預期信用損失分別為\$11,000、\$25,000 及\$13,000。

試作：

- (1)E 公司 2025 年發行公司債之相關分錄。
- (2)分別計算 2026 年 12 月 31 日：(a)E 公司公司債之攤銷後成本；(b)F 公司債券投資之總帳面金額。
- (3)F 公司 2027 年有關投資 E 公司債券之相關分錄（假設 F 公司未作迴轉分錄）。

六、(5%)

H 公司 2025 年度稅前淨利為\$5,000,000，採間接法編製現金流量表。

若該公司有下列調整項目，折舊費用\$1,000,000、專利權攤銷\$250,000、資產處分損失\$50,000、預期信用減損損失\$75,000、應收帳款增加\$50,000、存貨減少\$100,000、合約負債增加\$150,000、應付帳款增加\$200,000、現金支付所得稅\$350,000。H 公司 2025 年度無實際減損而沖銷應收帳款之情形。

則 2025 年度來自營業活動之現金流量為何？

備

註

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- 二、試題請隨卷繳交。

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說明：

- 作答時請完整列出過程，評分同時考量答案完整性及正確性
- 查表過程中，若本試題所提供之統計附表無對應數值，請使用最接近之查表數值代替。

Question 1 (15%)

Let X and Y be two random variables representing monthly asset returns for two assets. You are given the following summary statistics:

- Sample Variance of X : $S_x^2 = 4$
- Sample Variance of Y : $S_y^2 = 9$
- Sample Covariance: $S_{xy} = -3$

- (7%) Compute the Pearson correlation coefficient (r_{xy}) between X and Y .
- (8%) An analyst proposes a linear transformation of the original variables to account for leverage and fees. The new variables are defined as:

$$W = 3X + 5$$

$$Z = -2Y + 1$$

Derive the value of the covariance between W and Z (i.e., S_{wz}).

Question 2 (20%)

You are advising a regulator on the solvency of a bank. Let S denote "Solvent" and I denote "Insolvent". Based on historical market data, the prior probability of the bank being Insolvent is $P(I) = 0.05$.

You have access to two distinct, conditionally independent auditing algorithms: Audit A and Audit B. If the bank is Insolvent, Audit A flags it positive (A^+) with probability 0.90. If the bank is Solvent, Audit A flags it positive (A^+) with probability 0.10. If the bank is Insolvent, Audit B flags it positive (B^+) with probability 0.80. If the bank is Solvent, Audit B flags it positive (B^+) with probability 0.05.

- (6%) Suppose Audit A returns a positive flag (A^+). Calculate the posterior probability that the bank is **Insolvent**.
- (8%) After observing the positive result from Audit A in (a), you run Audit B and it also returns a positive flag (B^+). Update your posterior probability that the bank is **Insolvent** after this observation.
- (6%) The regulator considers intervening. Intervention incurs costs C . If the bank is truly Insolvent, intervention prevents a financial loss L . If the bank is Solvent, intervention provides no benefit.
 - Express the condition under which the regulator should intervene in terms of the posterior probability of insolvency, π^* , and the ratio C/L .
 - Based on your answer in (b), if the potential loss L is **3 times** the cost of intervention C , should the regulator intervene?

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Question 3 (20%)

A Public Health Department is evaluating compliance with a new "Sugar Tax" regulation. Based on preliminary data, the probability that a randomly selected retailer is non-compliant is 20%.

You randomly select a sample of $n = 100$ retailers for inspection. Let X denote the number of non-compliant retailers in your sample.

- (5%) State the expected value and the variance of the random variable X .
- (5%) Write the expression for the probability of finding exactly 25 non-compliant retailers using the Binomial PMF. (You do not need to compute the final decimal value).
- (5%) Use the Normal Approximation to estimate the probability that the number of non-compliant retailers is strictly greater than 25 (i.e., $P(X > 25)$). Is this approximation appropriate given the sample size and proportion? Briefly explain.
- (5%) A junior analyst suggests that if the sample size were extremely large ($n \rightarrow \infty$) and the probability of non-compliance were extremely small ($p \rightarrow 0$) such that np remained constant, a different distribution should be used. Which distribution is the analyst referring to?

Question 4 (20%)

A public agency pilots three training programs for unemployed workers: Program A, Program B, and Program C. The outcome is post-training monthly earnings (in ten-thousand dollars). Independent samples of participants were selected from each program.

You observe the following summary statistics:

Program	Sample Size	Sample Mean	Sample Variance
A	4	2.1	0.36
B	4	2.6	0.49
C	4	1.9	0.25

- (12%) Construct an ANOVA table to partition the variance in monthly earnings.
- (8%) Conduct an F-test at the 5% level. Based on the results, what can you conclude about the relative effectiveness of these programs?

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Question 5 (25%)

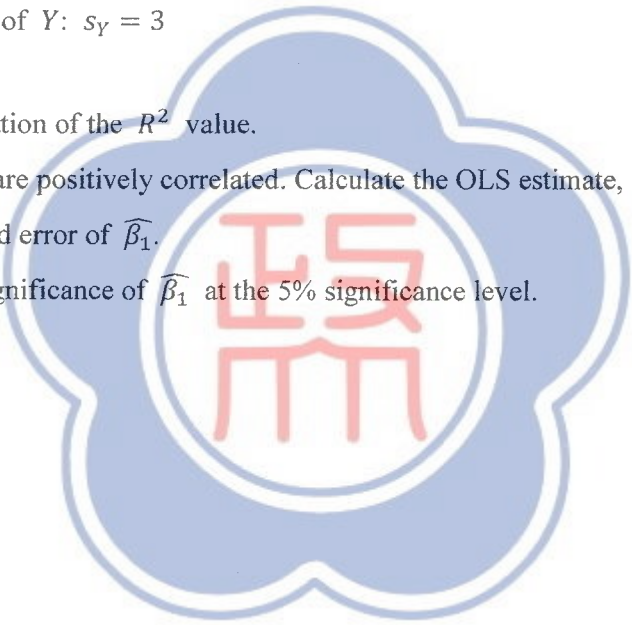
You study whether household annual consumption expenditure Y_i (in thousands of dollars) is related to household disposable income X_i (in thousands of dollars) using a cross-sectional survey of $n = 50$ households. You estimate the OLS regression with an intercept:

$$Y_i = \beta_0 + \beta_1 X_i + u_i, \quad i = 1, \dots, 50$$

Assume the observations are independent, and the error term (u_i) is homoskedastic and normally distributed.

From the regression output and sample summaries:

- $R^2 = 0.36$
 - Sample standard deviation of X : $s_X = 2$
 - Sample standard deviation of Y : $s_Y = 3$
- a) (5%) Provide an interpretation of the R^2 value.
 - b) (7%) Suppose X and Y are positively correlated. Calculate the OLS estimate, $\widehat{\beta}_1$.
 - c) (8%) Compute the standard error of $\widehat{\beta}_1$.
 - d) (5%) Test the statistical significance of $\widehat{\beta}_1$ at the 5% significance level.



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Cumulative Probabilities for Standard Normal Distribution

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990

備

註

- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。

考試科目	統計學	系所別	財政學系	考試時間	2 月 5 日(四) 第 4 節
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Student's t-Distribution

Degrees of Freedom		Area in Upper Tail					Degrees of Freedom		Area in Upper Tail				
Freedom	0.2	0.1	0.05	0.025	0.01	0.005	Freedom	0.2	0.1	0.05	0.025	0.01	0.005
1	1.376	3.078	6.314	12.706	31.821	63.657	51	0.849	1.298	1.675	2.008	2.402	2.676
2	1.061	1.886	2.920	4.303	6.965	9.925	52	0.849	1.298	1.675	2.007	2.400	2.674
3	0.978	1.638	2.353	3.182	4.541	5.841	53	0.848	1.298	1.674	2.006	2.399	2.672
4	0.941	1.533	2.132	2.776	3.747	4.604	54	0.848	1.297	1.674	2.005	2.397	2.670
5	0.920	1.476	2.015	2.571	3.365	4.032	55	0.848	1.297	1.673	2.004	2.396	2.668
6	0.906	1.440	1.943	2.447	3.143	3.707	56	0.848	1.297	1.673	2.003	2.395	2.667
7	0.896	1.415	1.895	2.365	2.998	3.499	57	0.848	1.297	1.672	2.002	2.394	2.665
8	0.889	1.397	1.860	2.306	2.896	3.355	58	0.848	1.296	1.672	2.002	2.392	2.663
9	0.883	1.383	1.833	2.262	2.821	3.250	59	0.848	1.296	1.671	2.001	2.391	2.662
10	0.879	1.372	1.812	2.228	2.764	3.169	60	0.848	1.296	1.671	2.000	2.390	2.660
11	0.876	1.363	1.796	2.201	2.718	3.106	61	0.848	1.296	1.670	2.000	2.389	2.659
12	0.873	1.356	1.782	2.179	2.681	3.055	62	0.847	1.295	1.670	1.999	2.388	2.657
13	0.870	1.350	1.771	2.160	2.650	3.012	63	0.847	1.295	1.669	1.998	2.387	2.656
14	0.868	1.345	1.761	2.145	2.624	2.977	64	0.847	1.295	1.669	1.998	2.386	2.655
15	0.866	1.341	1.753	2.131	2.602	2.947	65	0.847	1.295	1.669	1.997	2.385	2.654
16	0.865	1.337	1.746	2.120	2.583	2.921	66	0.847	1.295	1.668	1.997	2.384	2.652
17	0.863	1.333	1.740	2.110	2.567	2.898	67	0.847	1.294	1.668	1.996	2.383	2.651
18	0.862	1.330	1.734	2.101	2.552	2.878	68	0.847	1.294	1.668	1.995	2.382	2.650
19	0.861	1.328	1.729	2.093	2.539	2.861	69	0.847	1.294	1.667	1.995	2.382	2.649
20	0.860	1.325	1.725	2.086	2.528	2.845	70	0.847	1.294	1.667	1.994	2.381	2.648
21	0.859	1.323	1.721	2.080	2.518	2.831	71	0.847	1.294	1.667	1.994	2.380	2.647
22	0.858	1.321	1.717	2.074	2.508	2.819	72	0.847	1.293	1.666	1.993	2.379	2.646
23	0.858	1.319	1.714	2.069	2.500	2.807	73	0.847	1.293	1.666	1.993	2.379	2.645
24	0.857	1.318	1.711	2.064	2.492	2.797	74	0.847	1.293	1.666	1.993	2.378	2.644
25	0.856	1.316	1.708	2.060	2.485	2.787	75	0.846	1.293	1.665	1.992	2.377	2.643
26	0.856	1.315	1.706	2.056	2.479	2.779	76	0.846	1.293	1.665	1.992	2.376	2.642
27	0.855	1.314	1.703	2.052	2.473	2.771	77	0.846	1.293	1.665	1.991	2.376	2.641
28	0.855	1.313	1.701	2.048	2.467	2.763	78	0.846	1.292	1.665	1.991	2.375	2.640
29	0.854	1.311	1.699	2.045	2.462	2.756	79	0.846	1.292	1.664	1.990	2.374	2.640
30	0.854	1.310	1.697	2.042	2.457	2.750	80	0.846	1.292	1.664	1.990	2.374	2.639
31	0.853	1.309	1.696	2.040	2.453	2.744	81	0.846	1.292	1.664	1.990	2.373	2.638
32	0.853	1.309	1.694	2.037	2.449	2.738	82	0.846	1.292	1.664	1.989	2.373	2.637
33	0.853	1.308	1.692	2.035	2.445	2.733	83	0.846	1.292	1.663	1.989	2.372	2.636
34	0.852	1.307	1.691	2.032	2.441	2.728	84	0.846	1.292	1.663	1.989	2.372	2.636
35	0.852	1.306	1.690	2.030	2.438	2.724	85	0.846	1.292	1.663	1.988	2.371	2.635
36	0.852	1.306	1.688	2.028	2.434	2.719	86	0.846	1.291	1.663	1.988	2.370	2.634
37	0.851	1.305	1.687	2.026	2.431	2.715	87	0.846	1.291	1.663	1.988	2.370	2.634
38	0.851	1.304	1.686	2.024	2.429	2.712	88	0.846	1.291	1.662	1.987	2.369	2.633
39	0.851	1.304	1.685	2.023	2.426	2.708	89	0.846	1.291	1.662	1.987	2.369	2.632
40	0.851	1.303	1.684	2.021	2.423	2.704	90	0.846	1.291	1.662	1.987	2.368	2.632
41	0.850	1.303	1.683	2.020	2.421	2.701	91	0.846	1.291	1.662	1.986	2.368	2.631
42	0.850	1.302	1.682	2.018	2.418	2.698	92	0.846	1.291	1.662	1.986	2.368	2.630
43	0.850	1.302	1.681	2.017	2.416	2.695	93	0.846	1.291	1.661	1.986	2.367	2.630
44	0.850	1.301	1.680	2.015	2.414	2.692	94	0.845	1.291	1.661	1.986	2.367	2.629
45	0.850	1.301	1.679	2.014	2.412	2.690	95	0.845	1.291	1.661	1.985	2.366	2.629
46	0.850	1.300	1.679	2.013	2.410	2.687	96	0.845	1.290	1.661	1.985	2.366	2.628
47	0.849	1.300	1.678	2.012	2.408	2.685	97	0.845	1.290	1.661	1.985	2.365	2.627
48	0.849	1.299	1.677	2.011	2.407	2.682	98	0.845	1.290	1.661	1.984	2.365	2.627
49	0.849	1.299	1.677	2.010	2.405	2.680	99	0.845	1.290	1.660	1.984	2.365	2.626
50	0.849	1.299	1.676	2.009	2.403	2.678	100	0.845	1.290	1.660	1.984	2.364	2.626

備

註

- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。

考試科目	統計學	系所別	財政學系	考試時間	2月5日(四)第4節
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F-Distribution

Denominator Degrees of freedom	Area in Upper Tail	Numerator Degrees of Freedom														
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	
1	0.100	39.86	49.50	53.59	55.83	57.24	58.20	58.91	59.44	59.86	60.19	61.22	61.74	62.05	62.26	
	0.050	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54	241.88	245.95	248.01	249.26	250.10	
	0.025	647.79	799.50	864.16	899.58	921.85	937.11	948.22	956.66	963.28	968.63	984.87	993.10	998.08	1001.41	
	0.010	4052.18	4999.50	5403.35	5624.58	5763.65	5858.99	5928.36	5981.07	6022.47	6055.85	6157.28	6208.73	6239.83	6260.65	
	0.100	8.53	9.00	9.16	9.24	9.29	9.33	9.35	9.37	9.38	9.39	9.42	9.44	9.45	9.46	
2	0.100	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38	19.40	19.43	19.45	19.46	19.46	
	0.050	38.51	39.00	39.17	39.25	39.30	39.33	39.36	39.37	39.39	39.40	39.43	39.45	39.46	39.46	
	0.025	98.50	99.00	99.17	99.25	99.30	99.33	99.36	99.37	99.39	99.40	99.43	99.45	99.46	99.46	
	0.010	98.50	99.00	99.17	99.25	99.30	99.33	99.36	99.37	99.39	99.40	99.43	99.45	99.46	99.46	
	0.100	5.54	5.46	5.39	5.34	5.31	5.28	5.27	5.25	5.24	5.23	5.20	5.18	5.17	5.17	
3	0.100	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.70	8.66	8.63	8.62	
	0.050	17.44	16.04	15.44	15.10	14.88	14.73	14.62	14.54	14.47	14.42	14.25	14.17	14.12	14.08	
	0.025	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.35	27.23	26.87	26.69	26.58	26.50	
	0.010	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.35	27.23	26.87	26.69	26.58	26.50	
	0.100	4.54	4.32	4.19	4.11	4.05	4.01	3.98	3.95	3.94	3.92	3.87	3.84	3.83	3.82	
4	0.100	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.86	5.80	5.77	5.75	
	0.050	12.22	10.65	9.98	9.60	9.36	9.20	9.07	8.98	8.90	8.84	8.66	8.56	8.50	8.46	
	0.025	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66	14.55	14.20	14.02	13.91	13.84	
	0.010	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66	14.55	14.20	14.02	13.91	13.84	
	0.100	4.06	3.78	3.62	3.52	3.45	3.40	3.37	3.34	3.32	3.30	3.24	3.21	3.19	3.17	
5	0.100	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.62	4.56	4.52	4.50	
	0.050	10.01	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.68	6.62	6.43	6.33	6.27	6.23	
	0.025	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.16	10.05	9.72	9.55	9.45	9.38	
	0.010	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.16	10.05	9.72	9.55	9.45	9.38	
	0.100	3.78	3.46	3.29	3.18	3.11	3.05	3.01	2.98	2.96	2.94	2.87	2.84	2.81	2.80	
6	0.100	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	3.94	3.87	3.83	3.81	
	0.050	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.52	5.46	5.27	5.17	5.11	5.07	
	0.025	13.75	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.56	7.40	7.30	7.23	
	0.010	13.75	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.56	7.40	7.30	7.23	
	0.100	3.59	3.26	3.07	2.96	2.88	2.83	2.78	2.75	2.72	2.70	2.63	2.59	2.57	2.56	
7	0.100	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.51	3.44	3.40	3.38	
	0.050	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.90	4.82	4.76	4.57	4.47	4.40	4.36	
	0.025	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62	6.31	6.16	6.06	5.99	
	0.010	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62	6.31	6.16	6.06	5.99	
	0.100	3.46	3.11	2.92	2.81	2.73	2.67	2.62	2.59	2.56	2.54	2.46	2.42	2.40	2.38	
8	0.100	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.22	3.15	3.11	3.08	
	0.050	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36	4.30	4.10	4.00	3.94	3.89	
	0.025	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81	5.52	5.36	5.26	5.20	
	0.010	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81	5.52	5.36	5.26	5.20	
	0.100	3.36	3.01	2.81	2.69	2.61	2.55	2.51	2.47	2.44	2.42	2.34	2.30	2.27	2.25	
9	0.100	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.01	2.94	2.89	2.86	
	0.050	7.21	5.71	5.08	4.72	4.48	4.32	4.20	4.10	4.03	3.96	3.77	3.67	3.60	3.56	
	0.025	10.56	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26	4.96	4.81	4.71	4.65	
	0.010	10.56	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26	4.96	4.81	4.71	4.65	
	0.100	3.29	2.92	2.73	2.61	2.52	2.46	2.41	2.38	2.35	2.32	2.24	2.20	2.17	2.16	
10	0.100	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.85	2.77	2.73	2.70	
	0.050	6.94	5.46	4.83	4.47	4.24	4.07	3.95	3.85	3.78	3.72	3.52	3.42	3.35	3.31	
	0.025	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85	4.56	4.41	4.31	4.25	
	0.010	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85	4.56	4.41	4.31	4.25	
	0.100	3.23	2.86	2.66	2.54	2.45	2.39	2.34	2.30	2.27	2.25	2.17	2.12	2.10	2.08	
11	0.100	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.72	2.65	2.60	2.57	
	0.050	6.72	5.26	4.63	4.28	4.04	3.88	3.76	3.66	3.59	3.53	3.33	3.23	3.16	3.12	
	0.025	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.25	4.10	4.01	3.94	
	0.010	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.25	4.10	4.01	3.94	
	0.100	3.18	2.81	2.61	2.48	2.39	2.33	2.28	2.24	2.21	2.19	2.10	2.06	2.03	2.01	
12	0.100	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.62	2.54	2.50	2.47	
	0.050	6.55	5.10	4.47	4.12	3.89	3.73	3.61	3.51	3.44	3.37	3.18	3.07	3.01	2.96	
	0.025	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30	4.01	3.86	3.76	3.70	
	0.010	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30	4.01	3.86	3.76	3.70	
	0.100	3.14	2.76	2.56	2.43	2.35	2.28	2.23	2.20	2.16	2.14	2.05	2.01	1.98	1.96	
13	0.100	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.53	2.46	2.41	2.38	
	0.050	6.41	4.97	4.35	4.00	3.77	3.60	3.48	3.39	3.31	3.25	3.05	2.95	2.88	2.84	
	0.025	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10	3.82	3.66	3.57	3.51	
	0.010	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10	3.82	3.66	3.57	3.51	
	0.100	3.10	2.73	2.52	2.39	2.31	2.24	2.19	2.15	2.12	2.10	2.01	1.96	1.93	1.91	
14	0.100	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.46	2.39	2.34	2.31	
	0.050	6.30	4.86	4.24	3.89	3.66	3.50	3.38	3.29	3.21	3.15	2.95	2.84	2.78	2.73	
	0.025	8.86	6.51	5.56	5.04	4.69	4.46	4.28	4.14	4.03	3.94	3.66	3.51	3.41	3.35	
	0.010	8.86	6.51	5.56	5.04	4.69	4.46	4.28	4.14	4.03	3.94	3.66	3.51	3.41	3.35	
	0.100	3.07	2.70	2.49	2.36	2.27	2.21	2.16	2.12	2.09	2.06	1.97	1.92	1.89	1.87	
15	0.100	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.40	2.33	2.28	2.25	
	0.050	6.20	4.77	4.15	3.80	3.58	3.41	3.29	3.20	3.12	3.06	2.86	2.76	2.69	2.64	
	0.025	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80	3.52	3.37	3.28	3.21	
	0.010	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80	3.52	3.37	3.28	3.21	
	0.100	3.05	2.67	2.46	2.33	2.24	2.18	2.13	2.09	2.06	2.03	1.94	1.89	1.86	1.84	
16	0.100	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.35	2.28	2.23	2.19	
	0.050	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	3.05	2.99	2.79	2.68	2.61	2.57	
	0.025	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.41	3.26	3.16	3.10	
	0.010	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.41	3.26	3.16	3.10	
	0.100	3.03	2.64	2.44	2.31	2.22	2.15	2.10	2.06	2.03	2.00	1.91	1.86	1.83	1.81	
17	0.100	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.31	2.23	2.18	2.15	
	0.050	6.04	4.62	4.01	3.66	3.44	3.28	3.16	3.06</							

考試科目	財政學	系所別	財政學系	考試時間	2 月 5 日(四) 第 4 節
	<p>1. 為因應少子化問題，政府透過育兒津貼、托育補助與所得稅扣除額等方式提供家庭支持。請分析以「直接支出」與「租稅支出」方式鼓勵生育，在政策效果與所得重分配上的差異。(20 分)</p> <p>2. 假設政府實施一項所得重分配計畫，該計畫保證每個人都有某一基本生活所得水準。若個人沒有任何所得，政府即支付其全額的最低保障所得；而對於個人每增加 1 元的(薪資)所得，政府給付的補助金額即減少 0.5 元。請問此一制度將如何影響個人賺取所得的誘因？低所得者在此制度下，其所得是否一定會高於沒有此制度時？請繪圖說明你的論點。(20 分)</p> <p>3. 請問是否可以用「向富人多徵收的金額」與「向窮人少徵收的金額」之差額，作為衡量累進所得稅制重分配效果的良好指標？為什麼？(20 分)</p> <p>4. 一項勞動所得稅額抵減制度 (Earned Income Tax Credit, EITC) 規定如下： 對於年所得不超過 10,000 美元的勞動所得，提供可退還稅額抵減 (refundable credit)，其金額等於所得的 40%。當所得介於 10,000 至 15,000 美元之間時，稅額抵減金額固定為 4,000 美元。當所得超過 15,000 美元時，稅額抵減金額隨所得增加而線性遞減，並於所得達 31,000 美元時降為 0。 請繪圖說明你預期此一 EITC 制度將如何影響勞動供給：(20 分)</p> <p>a) 在所得介於 0 至 10,000 美元的區間內？</p> <p>b) 在所得介於 10,000 至 15,000 美元的區間內？</p> <p>c) 在所得介於 15,000 至 31,000 美元的區間內？</p> <p>5. 假設大學就學 (college enrollment) 具有正外部性，而大學教學 (college instruction) 服務是在完全競爭市場中提供，且其邊際社會成本 (marginal social cost) 會隨著就學人數增加而上升。請繪圖說明：(20 分)</p> <p>(a) 對大學生提供一項矯正性補貼 (corrective subsidy)，如何會提高教學服務的市場價格；</p> <p>(b) 該補貼所能帶來的淨福利增益 (net gain in well-being)；以及</p> <p>(c) 為籌措補貼成本所需的租稅收入 (tax revenue) 金額。</p>				
備註	<p>一、作答於試題上者，不予計分。</p> <p>二、試題請隨卷繳交。</p>				