

考試科目

保險法

系所別

國管系 法律組

考試時間

2月18日(六)第1節

一、甲因工作過勞而經常疲倦，體能狀況極為惡劣，遂於2010年3月赴醫院進行檢查，經診斷甲罹患肝硬化及脂肪肝等症狀。因家中仍有高堂妻小須扶養，甲遂以自己為被保險人，向A保險公司投保終身壽險附加住院醫療費用保險。於填寫要保書時，對於既往病症之詢問事項，甲均勾選「無」並親自簽名。因甲年齡尚輕，A保險公司並未要求體檢而同意承保，保險契約自2010年6月1日起生效。甲於2011年1月間因盲腸發炎住院七天，醫療費用支出三萬元，A保險公司於2012年2月1日依約理賠。之後，甲因併發猛暴性肝炎而於2012年3月12日死亡，受益人乙因恐A保險公司主張解除契約，故意遲延至2012年7月1日始通知A保險公司。

試問：

- (一) A保險公司能否以要保人甲違反告知義務為由，解除本保險契約？(20分)
- (二) A保險公司能否以受益人乙通知遲延為由，請求損害賠償？(20分)

二、銀行與保險公司合作，由銀行發函推銷給其信用卡客戶加入「信用卡保障計畫」。其內容為：「若銀行發行信用卡之持卡人付費加入該計畫，即可獲得以下保障：『若持卡人發生身故、全殘、暫時失能或非自願性離職等事由，銀行將豁免持卡人當期信用卡帳單之應付帳款總額。』」

試問：

此項計畫是否為保險商品？其法律關係之主體為何人？(30分)

三、張三之汽車向A保險公司投保汽車車體損失保險。張三於路邊合法停車後，遭酒後駕駛之李四擦撞被保險汽車，車體損失金額經勘估為10萬元。A保險公司依約將被保險汽車修復後，張三與李四私下達成和解，由加害人李四賠償張三5萬元，但從未知會A保險公司。

試問：

A能否依照保險法向李四主張代位求償？該和解之效力為何？(30分)

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	民法 41813 (總則與債編總論)	系 所 別	風險管理與保險學系 (法律組)	考 試 時 間	2 月 18 日(六) 第 3 節
一、甲擅自佔用乙所有已登記之土地，並在其上建築房屋一棟。乙因長期旅居國外，經 18 年後始知土地被佔用之事，便起訴請求甲拆屋還地；甲則抗辯乙的請求權消滅時效已經完成。請問：雙方主張何者有理？請附理由說明之。(25 分) 二、甲擁有汽車一輛，但未依法投保強制汽車責任保險。乙不知該車未依法投保強制汽車責任保險，向甲借用該車出遊。乙駕車行經某交岔路口時，因接聽手機分心，未注意號誌已轉為紅燈，因而擦撞行走於斑馬線上的行人丙，經送醫住院治療數月始痊癒。交通事故特別補償基金向丙支付醫藥費用共計 20 萬元後，向乙代位追償。乙向交通事故特別補償基金償還 20 萬元後，能否轉向甲請求償還該 20 萬元之醫療費用？請附理由說明之？(25 分) 三、甲積欠乙 100 萬元之借款，到期許久，仍未清償。乙對甲取得勝訴判決後，仍查無甲名下有何資產可供強制執行。嗣後乙輾轉得知，甲在 A 保險公司長期投保人壽保險，已累積保單價值準備金達 120 萬元。乙能否代位甲終止保險契約，針對解約金為強制執行？請附理由說明之。(25 分) 四、甲積欠乙 200 萬元，已到期但無力清償，嗣後甲之父親去世，遺留價值 500 萬元之遺產，由甲與母親共同繼承。然甲因不欲繼承所得之財產遭乙執行，遂依法向法院聲明拋棄繼承。乙心有不甘，聲請法院撤銷甲之拋棄繼承。請問：乙之主張有無理由？(25 分)					
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	41112, 41212, 4122A, 41713 經濟學	系所別	商學院 共同科	考試時間	2月18日(天) 第一節
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Multiple Choice (1 point each)

Identify the letter of the choice that best completes the statement or answers the question.

- Mike and Sandy are two woodworkers who both make tables and chairs. In one month, Mike can make 4 tables or 20 chairs, while Sandy can make 6 tables or 18 chairs. Given this, we know that
 - Mike has an absolute advantage in chairs.
 - Mike has a comparative advantage in tables.
 - Sandy has an absolute advantage in chairs.
 - Sandy has a comparative advantage in chairs.
- New oak tables are normal goods. What would happen to the equilibrium price and quantity in the market for oak tables if the price of maple tables rises and the price of wood saws increased?
 - Price will fall and the effect on quantity is ambiguous.
 - Price will rise and the effect on quantity is ambiguous.
 - Quantity will fall and the effect on price is ambiguous.
 - Quantity will rise and the effect on price is ambiguous.
- When a good is taxed, the burden of the tax
 - falls more heavily on the side of the market that is more elastic.
 - falls more heavily on the side of the market that is more inelastic.
 - falls more heavily on the side of the market that is closer to unit elastic.
 - is distributed independently of relative elasticities of supply and demand.
- An optimal tax on pollution would result in which of the following?
 - Producers will choose not to produce any pollution.
 - Producers will internalize the cost of pollution.
 - Producers will maximize production.
 - The value to consumers at market equilibrium will exceed the social cost of production.
- Which of the following is not a characteristic of pollution permits?
 - Prices are set by supply and demand.
 - Allowing firms to trade their permits reduces the total quantity of pollution beyond the initial allocation.
 - Real-world markets for pollution permits include sulfur dioxide and carbon.

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	經濟學	系所別	商學院 共同科	考試時間	2月18日(六) 第一節
D. Firms for whom pollution reduction is very expensive are willing to pay more for permits than firms for whom pollution reduction is less expensive. 6. The marginal product of labor is equal to the A. increase in labor necessary to generate a one unit increase in output. B. increase in output obtained from a one unit increase in labor. C. incremental profit associated with a one unit increase in labor. D. incremental cost associated with a one unit increase in labor. 7. When marginal revenue equals marginal cost, A. the firm must be generating economic profits. B. the profit maximizing firm should always increase its level of production. C. the firm must be generating economic losses. D. losses are minimized even if the firm is not making a profit. 8. Which of the following statements is true of monopolies? A. Monopolies can charge any price they want. B. Unlike competitive firms, monopolies are not constrained by market demand. C. Monopolies will always increase their revenue by selling more of their goods. D. All of the above are correct. 9. Because each oligopolist cares about its own profit rather than the collective profit of all the oligopolists together, A. society is worse off. B. they are able to maximize their individual profits. C. they are unable to maintain monopoly power. D. All of the above are correct. 10. If firms in a monopolistically competitive market are earning economic profits, which of the following scenarios would best reflect the change facing incumbent firms as the market adjusts to its new equilibrium? A. a downward shift in their marginal cost curve B. an upward shift in their marginal cost curve C. an increase in demand D. a decrease in demand					
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考試科目	經濟學	系所別	商學院 共同科	考試時間	2月18日(天) 第一節
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11. The menu cost of inflation arises since
- people hold less currency if inflation is positive and thus they take more trips to the bank.
 - the central bank eventually has to restrict money supply and this causes an increase in the unemployment rate.
 - real wages and real money holdings lose purchasing power.
 - resources have to be devoted to marking up prices and changing vending machines and cash registers.
12. In the medium run, if government purchases are increased and nominal money supply is decreased, we can expect that
- aggregate demand and prices will increase but interest rates will not change.
 - aggregate demand, prices, and the interest rate will all decrease.
 - aggregate demand and interest rates will decrease but prices will increase.
 - the interest rate will increase while aggregate demand and prices may increase, decrease, or remain the same.
13. Assume you would like to stimulate investment but leave the level of GDP roughly the same. What policy mix would you propose?
- an income tax cut combined with monetary expansion
 - a tax cut combined with monetary restriction
 - a cut in government spending combined with monetary expansion
 - a cut in government spending combined with monetary restriction
14. Given a normal IS-LM model, which of the following is FALSE?
- Expansionary monetary policy will increase the level of investment and consumption.
 - Lower income taxes will raise the level of consumption but lower the level of investment.
 - A cut in government transfer payments will reduce consumption and interest rates.
 - An investment subsidy will increase the level of investment but not the level of consumption.
15. If we compare a closed economy to an open economy under a flexible exchange rate system, we can see that fiscal policy is always
- more effective because of positive repercussion effects.
 - more effective because the marginal propensity to import is positive.
 - less effective because part of the increase in domestic income is spent on foreign goods.

備

註

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考試科目	經濟學	系所別	商學院	考試時間	2月18日(六) 第一節
D. less effective because expansionary fiscal policy always has to be supplemented by restrictive monetary policy. 16. If the government increases expenditures on goods and services and increases taxation by the same amount, which of the following will occur? A. Aggregate demand will be unchanged. B. Aggregate demand will increase. C. The money supply will decrease. D. The money supply will increase. 17. To counteract a recession, the central bank should A. sell securities on the open market and raise the discount rate. B. sell securities on the open market and lower the discount rate. C. buy securities on the open market and raise the discount rate. D. buy securities on the open market and lower the discount rate. 18. If the reserve requirement is 25 percent and banks hold no excess reserves, an open market sale of \$400,000 of government securities by the central bank will A. increase the money supply by up to \$1.6 million. B. decrease the money supply by up to \$1.6 million. C. increase the money supply by up to \$400,000. D. decrease the money supply by up to \$400,000. 19. If nominal gross domestic product fell while real gross domestic product rose, which of the following must be true? A. Unemployment increased. B. The inflation rate was negative. C. Net exports were negative. D. The average of stock prices rose while bond prices fell. 20. The purchase of bonds by the central bank will have the greatest effect on real gross domestic product if which of the following situations exists in the economy? A. The required reserve ratio is high, and the interest rate has a large effect on investment spending.					
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考試科目	經濟學	系所別	商學院	考試時間	2月18日(六)第一節
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B. The required reserve ratio is high, and the interest rate has a small effect on investment spending.

C. The required reserve ratio is low, and the interest rate has a large effect on investment spending.

D. The required reserve ratio is low, and the marginal propensity to consume is low.

Problems and Short-essay Questions

Please answer the following questions IN SEQUENCE. All questions may be answered in either Chinese or English.

1. Consider an individual who has I dollars to allocate between good x and good y and whose preference is represented by the quasi-linear utility function $U(x, y) = \ln x + y$. Let p_x and p_y denote, respectively, the prices of good x and good y .

A. (6 points) Calculate the Marshallian demand functions for good x and good y .

B. (6 points) Suppose that $p_x = 1$, $p_y = 2$, and $I = 8$. Calculate the income elasticity of demand for each good.

C. (4 points) Now suppose the government levies a 1 dollar per unit tax on good x such that the price of good x increases to $p_x = 2$ while the price of good y and income remain unchanged at $p_y = 2$ and $I = 8$. Calculate the tax revenue and the indirect utility.

D. (4 points) Suppose instead of taxing the consumption of good x , an income tax that collects the same amount of tax revenue as in part (C) is imposed. Calculate the indirect utility.

2. In a monopolistically competitive market, a firm faces the following demand function:

$$q = \frac{P^{-\sigma}}{N},$$

where q is the quantity demanded, P is the price, $\sigma > 1$ is a constant, N is the number of producers.

The total cost of production is $f + cq$, where f and c are both positive and constants.

A. (10 points) Derive the optimal price charged by the firm.

B. (10 points) Calculate the number of producers at equilibrium.

備

註

一、作答於試題上者，不予計分。
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考試科目	經濟學	系所別	商學院	考試時間	2月18日(天) 第一節
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3. Consider an economy in which production is characterized by the neoclassical function $Y = K^{0.5}N^{0.5}$, where Y , K and N denote the output, capital stock and quantity of labor, respectively. Suppose that it has a saving rate of 0.1, a population growth rate of 0.02, and an average depreciation rate of 0.03.

A. (5 points) Write this production function in per capita form in which $y = Y/N$ and $k = K/N$, and find the steady-state value of y and k .

B. (5 points) At the steady-state value of k , is there more or less capital than at the golden-rule level?

C. (5 points) Determine what saving rate would yield the golden-rule level of capital in this model.

D. (5 points) In the context of this neoclassical growth model, can a country have *too much* saving?

4. Answer the following two questions:

A. With a consumption function $C = 100 + 0.8Y_d$ (Y_d , the disposable income, is defined as income after taxes: $Y_d = Y - T$), investment $I = 200$, government expenditure $G = 100$, transfer payment $TR = 62.5$, tax revenue $T = 0.25Y$, compute

a. (4 points) the equilibrium national income;

b. (4 points) the balanced budget multiplier for this economy.

B. For a country with the following macroeconomic statistics: national income=5000; disposable income=4000; government budget deficit=200; consumption=3500; and trade deficit=100, compute levels of

a. (4 points) saving;

b. (4 points) investment;

c. (4 points) government expenditure for this country.

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 41823	系 所 別	風險管理與保險學系/ 管理組	考 試 時 間	2 月 18 日(六) 第 3 節
1. A pack of cards contains 5 green and 3 red cards respectively. One of the cards will be randomly drawn and when it is put back 2 additional cards of the same color are put in with it. What is the probability that the first card drawn was green given that the second card drawn was red? (10%) 2. A hospital conducts a clinical trial to test whether or not a new drug is effective. Forty-six patients take this drug and are seen 3 days later, at which time 6 of the patients still do not recover from their illness. ($z_{0.95}=1.645$; $z_{0.975}=1.96$; $z_{0.9901}=2.33$) (1) What is a 95% confidence interval for the probability of a failure with the drug? (10%) (2) Suppose another drug has a 5% failure rate. Can a conclusion be drawn concerning the comparison of effectiveness of these two drugs? (10%) 3. Suppose you are investigating whether eating food A increases the probability of being infected with disease B. A group of 1,000 people is identified and followed for 10 years. After these years, 20 new cases of disease B have occurred. Assume that the incidence rate of this disease over this period for an average person is 0.007. Please test the hypothesis that eating food A increases the risk of disease B at the 5% significant level. (10%) ($z_{0.95}=1.645$; $z_{0.975}=1.96$; $z_{0.9901}=2.33$) 4. The data on the marks of three groups of students are as follows. Group A: mean= 55, standard deviation = 9, number of students = 10; Group A: mean= 56, standard deviation = 16, number of students = 10; Group A: mean= 74, standard deviation = 16, number of students = 10. Assume the underlying variances of these three groups of students are equal. (1) Use a one-way ANOVA to compare the underlying means of these three groups of students at the 5% significant level. ($F_{2, 30, .95}=3.32$; $F_{2, 20, .95}=3.49$) (10%) (2) Use the t-test methodology to compare the underlying means of each specific pair of groups at the 5% significant level. ($t_{27, .95}=1.703$) (15%) 5. Define the following terms: (1) Unbiased estimator (5%) (2) Standard error (5%) (3) Coefficient of determination (5%) 6. Suppose both T_1 and T_2 are independent and random variables that follow exponential distribution with rate μ. Let $T_{(1)} = \text{minimum}(T_1, T_2)$ and $T_{(2)} = \text{maximum}(T_1, T_2)$. (1) Find $E[T_{(1)}]$ (10%) (2) Find $\text{Var}[T_{(2)}]$ (10%)					
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	微積分 41832	系 所 別	風險管理與保險學系/ 精算科學組	考 試 時 間	2 月 18 日(六) 第 1 節
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Please show all your work.

1. A plane is flying horizontally at a speed of 500 km per hour and an altitude of 1 km. It passes directly over a school. Find the rate at which the distance from the plane to the school is increasing when it is 2 km away from the school. (10%)
2. Find the area under the curve $y = \sin x$ on the interval $[0, \pi]$. (10%)
3. Evaluate $\int_{-2}^2 \frac{1}{y^2-1} dy$ (10%)
4. Find the values of y for which the series $\sum_{n=0}^{\infty} (y-3)^n$ converges. (10%)
5. $z = x \sin y$, find $\frac{\partial^3 z}{\partial y^2 \partial x}$. (10%)
6. Evaluate $\int_C x^2 dx + y^2 dy$, where C is the curve $x^6 + y^6 = 1$. (10%)
7. Evaluate $\int_0^3 \int_{y^2}^9 y \cos(x^2) dx dy$ (10%)
8. Find the center of the sphere $x^2 + y^2 + z^2 = x$ (10%)
9. Find $\lim_{y \rightarrow -\infty} (\sqrt{y^2 + y + 1} + y)$ (10%)
10. $\int_0^{\frac{\pi}{2}} x \cos 2x dx$ (10%)

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 41833	系所別	風管系(精算組)	考試時間	2月18日(六)第三節
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1. (20%) Suppose that X and Y have the joint density function

$$f(x, y) = c\sqrt{1 - x^2 - y^2}, \quad x^2 + y^2 \leq 1$$

(a) Find c

(b) Find $P(X^2 + Y^2 \leq 0.5)$.

2. (20%) Let X and Y be independent exponential random variables with parameter λ .

(a) Find the joint density of $X + Y$ and X/Y .

(b) Show that $X + Y$ and X/Y are independent.

3. (20%) If $U_1, \dots, U_n$ are independent uniform random variables, and $U_{(1)} < \dots < U_{(n)}$ denote their order statistics.

(a) Find $E(U_{(n)} - U_{(1)})$

(b) Find $E(U_{(k)} - U_{(k-1)})$

4. (20%) Let $X_i \sim \text{Binom}(n_i, p_i)$, for $i = 1, \dots, m$, be independent.

(a) Derive a likelihood ratio test for the hypothesis

$$H_0: p_1 = p_2 = \dots = p_m$$

against the alternative hypothesis that the p_i are not all equal.

(b) What is the large sample distribution of the test statistic.

5. (20%) Let $X_1, \dots, X_n$ be a sample of i.i.d. normal random variables with unknown mean μ and variance σ^2 , and

$$s^2 = \frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2, \quad \hat{\sigma}^2 = \frac{1}{n} \sum_{i=1}^n (X_i - \bar{X})^2$$

are estimates of σ^2

(a) Compute mean square error (MSE) of s^2 and $\hat{\sigma}^2$

(b) For what value of c does $c \sum_{i=1}^n (X_i - \bar{X})^2$ have the minimal MSE?

備

註

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