國立政治大學 九十九 學年度研究所 博(碩) 士班招生考試試題

考試科目	財務管理	所別	財務管理 4171	考試時間	3月7日(日) 第1節

I、簡答題：(每題 7 分)

1. 為何財務經理在做財務決策時，可不用顧及股東的風險偏好？
2. 何謂可支持的成長率，其對公司的經營與融資策略的意義為何？
3. 為何在做資本預算時，並不考慮利息費用，但考慮流動資金的變動？
4. 說明在一效率市場下，基本面的分析所帶給投資人的功能。
5. 對於一家舉債的公司，若其用證券市場線來決定其一與公司風險相同投資計畫所需的資金成本，所得成本是否合理？說明理由。
6. 有一家公司每年將其所賺的盈餘都當現金股利發放，若其發現以舉債融資每年可發放給股東的利息較以發行股票的為高，因此決定增加其對舉債融資的需求，你是否同意該作法？
7. 有一家公司向來每年都發放 90%盈餘當作股利，目前因應同業競爭的加劇，有經理提議降低發放比率至 50%, 但是另外有經理反對，因為該公司有很多股東是股利偏好者，又另有一經理提出依據顧客效果，股利的變動是不會影響公司價值的，提出你對這三位經理提議的看法。
8. 對於一成長性高的公司，使用可轉換公司債，是否應優先於股票或債券的使用？說明理由。
9. 說明對於成長公司與小型企業為何較需做風險管理？又對於一家對其原料做風險管理的公司，其機會成本為避險的價格或為市場原料的價格？
10. 有一人說：我們發現每家公司的資本結構隨著時間多會有相當得波動，這樣的現象應支持融資順位論而不支持抵換理論。試問你是否同意他的觀點？

II、 計算題 (每題 15 分)

1. A 同學目前為一位大四的學生，他正考慮是否應就業或是繼續研究所的學業，假設他預計於 55 歲時退休，如果畢業就開始就業，預計起薪為 3 萬元，每年可以 3%成長至退休為止；如果進研究所，預計兩年後畢業，起薪為 3.5 萬元，每年可以 3%成長至退休為止，預計這兩年每年的學費為 10 萬元，生活費為 20 萬元, 若向銀行貸款，利率為 6%, 由於 A 同學父母目前都在工作，因此可供其這兩年的花費，

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銀行目前的存款利率為 4%,

（a）就上述有關的資訊分析 A 同學是否應繼續研究所的學業？

（ b ）又其實 A 同學可選擇在未來的 15 年內的任一年再繼續研究所的學業，應如何衡量這項可能？

2. Mr. Lee must decide when to replace his autoclave. His current autoclave will require increasing amounts of maintenance each year and can last for another 4 years. The resale value of the equipment falls every year. The following table presents this data

Year	Maintenance costs	Resale value
Today	$0	$900
1	200	850
2	275	700
3	325	500
4	450	200

Mr. Lee can purchase a new autoclave for $3,000. The new autoclave has an economic life of five years. At the end of each of those years, the new autoclave will require $50 of maintenance. He expects to be able to sell the new autoclave for 1,000 at the end of five years. Assume Mr. Lee will pay no taxes. The appropriate discount rate for this decision is 10 percent. When should he replace his current autoclave?

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Present Value of an Annuity of $1 per Period for T Periods = $[1 - 1/(1 + r)^T]/r$

NUMBER OF PERIODS	Interest Rate								
	1%	2%	3%	4%	5%	6%	7%	8%	9%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285
21	18.8570	17.0112	15.4150	14.0292	12.8212	11.7641	10.8355	10.0168	9.2922
22	19.6604	17.6580	15.9369	14.4511	13.1630	12.0416	11.0612	10.2007	9.4424
23	20.4558	18.2922	16.4436	14.8568	13.4886	12.3034	11.2722	10.3741	9.5802
24	21.2434	18.9139	16.9355	15.2470	13.7986	12.5504	11.4693	10.5288	9.7066
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617

NUMBER OF PERIODS	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576
2	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
21	8.6487	7.5620	6.6870	6.3125	5.9731	5.3837	4.8913	4.1212	3.5514	3.1158
22	8.7715	7.6446	6.7429	6.3587	6.0113	5.4099	4.9094	4.1300	3.5558	3.1180
23	8.8832	7.7184	6.7921	6.3988	6.0442	5.4321	4.9245	4.1371	3.5592	3.1197
24	8.9847	7.7843	6.8351	6.4338	6.0726	5.4509	4.9371	4.1428	3.5619	3.1210
25	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250

備註	試題隨卷繳交

考試科目	會計學	所別	財務管理 417	考試時間	3 月 7 日(日) 第 1 節

1. Kool Company's 2009 income statement and selected balance sheet data at December 31, 2008 and 2009, follow ($ thousands). All sales and purchase transactions are on credit.

Kool Company Income Statement		($ thousands)
Sales revenue		$ 3,744,000
Expenses:		
Cost of goods sold	$ 1,728,000	
Depreciation expense	768,000	
Salaries expense	480,000	
Rent expense	120,000	
Insurance expense	62,400	
Interest expense	57,600	
Utilities expense	60,000	3,276,000
Net income		$ 468,000

Kool Company Selected Balance Sheet Accounts		($ thousands)
	2009	2008
Accounts receivable	$ 864,000	$ 720,000
Inventory	206,400	235,200
Accounts payable	288,000	312,000
Salaries payable	216,000	144,000
Utilities payable	48,000	0
Prepaid insurance	33,600	43,200
Prepaid rent	24,000	48,000

Required: using 365days for a year. (25%)

(1) Prepare the cash flows from operating activities section only of the Company's 2009 statement of cash flows using the direct method.

(2) How would you evaluate the cash-generating efficiency of Kool? Is Kool doing well? Provide two measures to support your answer. (computation rounded to two digits after the decimal)

(3) How would you evaluate the operating performance of Kool? Provide two measures to support your answer. (computation rounded to two digits after the decimal)

(4) Calculate the length of Kool's operating cycle. (round your answer to an integer)

(5) Calculate the length of Kool's financing period. (round your answer to the integer)

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2. Peak Company, which began operations on January 1, 2008, had the following subsequent transactions and events in its long-term investments.

Year 2008:

Jan. 5 Peak purchased 50,000shares (25% of total) of Band's common stock for $802,000.

Aug. 1 Band declared and paid a cash dividend of $1.10 per share.

Dec. 31 Band's net income for 2008 is $328,000, and the fair value of its stock is $17.50 per share.

Year 2009:

Aug. 1 Band declared and paid a cash dividend of $1.30 per share.

Dec. 31 Band's net income for 2009 is $312,000, and the fair value of its stock is $19.25 per share.

Year 2010:

Jan. 8 Peak sold all of its investment in Band for $1,100,000.

Required: (25%)

(1) Assume that Peak has a significant influence over Band with its 25% share:

(a) Prepare journal entries to record these transactions and events for Peak.

(b) Compute the carrying (book) value per share of Peak's investment in Band common stock as reflected in the investment account on January 7, 2010.

(c) Compute the net increase or decrease in Peak's equity from January 5, 2008, through January 8, 2010, resulting from its investment in Band.

(2) Assume that although Peak owns 25% of Band's outstanding stock, circumstances indicate that it doe not have a significant influence over the investee and that it is classified as an available-for-sale security investment:

(a) Compute the cost per share of Peak's investment in Band common stock as reflected in the investment account on January 7, 2010.

(b) Compute the net increase or decrease in Peak's equity from January 5, 2008, through January 8, 2010, resulting from its investment in Band.

3. The consolidated statement of stockholders' equity for Dickson Corporate is presented below. This statement of stockholders' equity has nine summary transactions. Show that you understand it by preparing an entry in journal form with explanation for each transaction. In each case, if applicable, determine the average price per common share. At times, you will have to make assumptions about an offsetting part of the entry. For example,

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assume debentures (long-term bonds) are recorded at face value and that employees pay cash for stock purchased under company incentive plans. Also, define comprehensive income and determine the amount for Dickson Corporate. **(25%)**

Dickson Corporate
Consolidated Statement of Stockholders' Equity
For the Year Ended September 30, 2009
(In thousands)

	Preferred Stock	Common Stock	Paid-in Capital in Excess of Par Value, Common	Retained Earnings	Treasury Stock, Common	Accumulated Other Comprehensive Income	Total
Balance at September 30, 2008	$41,340	$58,530	$212,235	$1,789,680	($14,130)		$2,087,655
Net Income	—	—	—	281,295	—		281,295
Unrealized gain on available for sale securities						$180,000	180,000
Redemption and retirement of preferred stock (413,400 shares)	(41,340)	—	—	—	—		(41,340)
Stock options exercised (1,335,000 shares)	—	1,335	12,705	—	—		14,040
Purchases treasury stock common (7,521,180 shares)	—	—	—	—	($188,280)		(188,280)
Issuance of common stock (2,220,000 shares) in exchange for convertible subordinated debentures	—	2,220	54,525	—	—		56,745
Issuance of common stock (10,725,000 shares) for cash	—	10,725	368,025	—	—		378,750
Issuance of 7,500,000 shares of common stock in exchange for investment in E Company shares	—	7,500	258,945	—	—		266,445
Cash dividends—common stock ($0.80 per share)	—	—	—	($46,290)	—		(46,290)
Balance at September 30, 2009	$ —	$80,310	$906,435	$2,024,685	($202,410)	$180,000	$2,989,020

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4. Apex Co. is preparing a cash budget for the second quarter of the coming year. The following data have been forecasted:

	April	May
Sales	$ 1,800,000	$ 1,890,000
Merchandise purchases	1,284,000	1,348,800
Operating expenses:		
Payroll	163,200	171,360
Advertising	64,800	68,400
Rent	18,000	18,000
Depreciation	90,000	90,000
End of April balance		
Cash	480,000	
Bank loan payable	192,000	

Additional data:

(1) Sales are 40% cash and 60% credit. The collection pattern for credit sales is 50% in the month following the sale and 50% in the month thereafter. Total sales in March were $1,500,000.

(2) Purchases are all on credit, with 40% paid in the month of purchase and the balance paid in the following month.

(3) Operating expenses are paid in the month they are incurred.

(4) A minimum cash balance of $480,000 is required at the end of each month.

(5) Loans are used to maintain the minimum cash balance. At the end of each month, interest of 1% per month is paid on the outstanding loan balance as of the beginning of the month. Repayments are made whenever excess cash is available.

Required: **(25%)**

Prepare Apex's cash budget for May. Show the ending loan balance at May 31.

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Multiple Choice (1.7 points each)

本科目之選擇題請在答案卡上作答

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

Mark each answer clearly with a No. 2 pencil on the Scantron form.

1. Which of the following would shift the demand curve for new textbooks to the right?
   (a) A fall in the price of paper used in publishing texts
   (b) A fall in the price of equivalent used textbooks
   (c) An increase in the number of students attending college
   (d) A fall in the price of new textbooks

2. Which of the following will NOT cause a shift in the supply of gasoline?
   (a) An increase in the wage rate of refinery workers
   (b) A decrease in the price of gasoline
   (c) An improvement in oil refining technology
   (d) A decrease in the price of crude oil

3. We observe that both the price of and quantity sold of golf balls are rising over time. This is due to
   (a) continual improvements in the technology used to produce golf balls.
   (b) increases in the price of golf clubs over time.
   (c) decreases in membership fees for country clubs with golf facilities.
   (d) more stringent professional requirements on the quality of golf balls requiring producers to use more expensive raw materials.

4. Mikey is very picky and insists that his mom make his breakfast with equal parts of cereal and apple juice – any other combination will end up on the floor. Cereal costs 4 cents per tablespoon and apple juice costs 6 cents per tablespoon. If Mikey's mom budgets $8 per month for Mikey's breakfast, how much cereal and juice does she buy?
   (a) 40 tablespoons each of cereal and juice
   (b) 80 tablespoons each of cereal and juice
   (c) 40 tablespoons of cereal and 75 tablespoons of juice
   (d) 100 tablespoons of cereal and 67 tablespoons of juice

5. Any risk-averse individual would always
   (a) take a 10% chance at $100 rather than a sure $10.

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(b) take a 50% chance at \$4 and a 50% chance at \$1 rather than a sure \$1.

(c) take a sure \$10 rather than a 10% chance at \$100.

(d) take a sure \$1 rather than a 50% chance at \$4 and a 50% chance at losing \$1.

6. A farmer uses K units of machinery and L hours of labor to produce Q tons of corn, with the following production function $Q = L^{0.5} + K^{0.75}$. This production function exhibits

(a) decreasing returns to scale for all output levels.

(b) constant returns to scale for all output levels.

(c) increasing returns to scale for all output levels.

(d) no clear pattern of returns to scale.

7. If a competitive firm's marginal costs always increases with output, then at the profit maximizing output level, producer surplus is

(a) zero because marginal costs equal marginal revenue.

(b) zero because price equals marginal costs.

(c) positive because price exceeds average variable costs.

(d) positive because price exceeds average total costs.

8. At the current level of output, long-run marginal cost is \$50 and long-run average cost is \$75. This implies that

(a) there are neither economies nor diseconomies of scale.

(b) there are economies of scale.

(c) there are diseconomies of scale.

(d) the cost-output elasticity is greater than one.

9. How are a firm's short-run and long-run average cost curves related?

(a) SRAC is greater than LRAC, which forces the LRAC curve to be upward sloping.

(b) SRAC and LRAC slope up or down together, but SRAC is always the steeper of the two curves.

(c) The SRAC curve is tangent to and lies above the LRAC curve.

(d) The LRAC curve just touches the SRAC curve at its minimum point.

10. A firm is currently producing 200 units of output using 60 hours of labor and 80 hours of capital. The marginal product of labor is 12 units of output per hour, and the marginal product of capital is 15 units of output per hour. If the wage rate is \$6 per hour and the rental rate is \$3 per hour, then

(a) the firm's use of labor and capital is cost-efficient.

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(b) the firm should use more labor and less capital.

(c) the firm should use more capital and less labor.

(d) we cannot determine if the firm's use of inputs is efficient without more information.

11. There are three firms in Green Valley. Initially, each firm emits 4 units of pollution. The following table shows the total costs for each of three firms (A, B, and C) to eliminate units of pollution from their production processes. For example, for Firm A to eliminate one unit of pollution, it would cost \$1, and for Firm A to eliminate two units of pollution, it would cost a total of \$3.

	Firms		
Unit to be eliminated	A	B	C
One unit	1	4	4
Two units	3	8	9
Three units	6	12	15
Four units	10	16	22

Suppose the government wants to reduce pollution to 9 units, so it gives each firm 3 tradable pollution permits. Which of the following statement is true?

(a) Firm A will buy permit(s) from firms B and C.

(b) Firms A and B will buy permit(s) from firm C.

(c) Firm B will buy permit(s) from firms A and C.

(d) Firms B and C will buy permit(s) from firm A.

12. Consider a monopolist facing two consumers whose preferences for its product are given by the following demand curves: $P_1 = 20 - Q_1$ and $p_2 = 12 - 2Q_2$. The monopolist's fixed cost is equal to 0 and marginal cost is equal to 4. Suppose the monopolist can not tell the consumers apart. What is the maximum profit if the monopolist uses a two-part tariff pricing scheme?

(a) 32

(b) 64

(c) 128

(d) 144

13. A monopolistically competitive firm is currently producing 10 units of output. At this level of output the firm is charging a price equal to \$10, has marginal revenue equal to \$6,

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has marginal cost equal to $6, and has average total cost equal to $12. From this information we can infer that

(a) the firm can increase its profit by producing less.

(b) the profits of the firm are negative.

(c) firms are likely to enter this market in the long run.

(d) the firm's fixed cost must be greater than 20.

14. It is commonly argued that national defense is a public good. Nevertheless, many weapons used by the R.O.C. military are produced by U.S. private firms. We can conclude that

(a) resources would be used more efficiently if the U.S. firms produced the weapons.

(b) resources would be used more efficiently if private firms provided national defense.

(c) weapons are rival in consumption and excludable.

(d) national defense is rival in consumption and excludable.

15. Some economists argue that a resale price maintenance agreement is not anti-competitive because

(a) suppliers are never able to exercise noncompetitive market power.

(b) if a supplier has market power, it can exert that power through the wholesale price rather than the retail price.

(c) retail markets are inherently noncompetitive.

(d) resale price maintenance prevents the retailers from competing on price.

16. A monetary expansion combined with an increase in government spending will cause

(a) an increase in output with ambiguous effects on the interest rate.

(b) a reduction in output with ambiguous effects on the interest rate.

(c) an increase in the interest rate with ambiguous effects on output.

(d) a reduction in the interest rate with ambiguous effects on output.

17. Which of the following event is most likely to occur when the interest rate increases?

(a) the money demand curve shifts to the right

(b) the money demand curve shifts to the left

(c) the price of bonds will fall

(d) the price of bonds will rise

18. The recent recession may increase the marginal propensity to save, which tends to cause

(a) an increase in the multiplier and a given change in government expenditures to have a smaller effect on equilibrium output.

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(b) a reduction in the multiplier and a given change in government expenditures to have a smaller effect on equilibrium output.

(c) an increase in the multiplier and a given change in government expenditures to have a greater effect on equilibrium output.

(d) a reduction in the multiplier and a given change in government expenditures to have a greater effect on equilibrium output.

19. According to the theory of liquidity preference, which variable adjusts to balance the supply and demand for money?

(a) interest rate
(b) monetary base
(c) quantity of output
(d) price level

20. Which of the following events will trigger a rightward shift of the aggregate demand curve?

(a) an increase in the price level
(b) an increase in tax
(c) an increase in money supply
(d) an increase in the nominal wage

21. Without an accommodating monetary policy, a push by workers to get higher wages will cause

(a) hyperinflation.
(b) higher unemployment.
(c) cost-push inflation.
(d) demand-pull inflation.

22. If the government issues debt to the public to finance its spending, the monetary base will _____ and the money supply will _____.

(a) decrease; increase
(b) increase; increase
(c) increase; decrease
(d) not change; not change

23. If the expected path of one-year interest rates over the next five years is 5 percent, 6 percent, 8 percent, 9 percent, and 7 percent, then according to the expectations theory

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today's interest rate on the five-year bond should be

(a) 4 percent.

(b) 5 percent.

(c) 6 percent.

(d) 7 percent.

24. If a bank has $80,000 of checkable deposits, a required reserve ratio of 20 percent on these deposits, and it holds $40,000 in reserves, then the maximum deposit outflow it can sustain without altering its balance sheet is

(a) $20,000.

(b) $30,000.

(c) $40,000.

(d) $25,000.

25. The most important advantage of discount policy is that the central bank can use it to

(a) control the money supply.

(b) punish banks that have deficient reserves.

(c) perform its role as lender of last resort.

(d) precisely control the monetary base.

26. The nominal exchange rate is the

(a) nominal interest rate in one country divided by the nominal interest rate in the other country.

(b) price of a good in one country divided by the price of the same good in another.

(c) rate at which a person can trade the currency of one country for the currency of another.

(d) the number of goods a person can trade for a similar good in another country.

27. If the direct nominal exchange rate, S, is domestic dollar per foreign currency, the domestic price is P, and the foreign price is p^*, the direct real exchange rate is defined as

(a) $(SP^*)/P$.

(b) $(SP)/P^*$.

(c) $P^*/(SP)$.

(d) $P/(SP^*)$.

28. If purchasing-power parity holds, then the value of the

(a) real exchange rate is equal to one.

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(b) nominal exchange rate is equal to one.

(c) real exchange rate is equal to the nominal exchange rate.

(d) real exchange rate is equal to the difference in inflation rates between the two countries.

29. Which of the following statements is incorrect for an open economy?

(a) A country can have a trade deficit, trade surplus, or balanced trade.

(b) A country that has a trade deficit has positive net capital outflow.

(c) Net exports must equal net capital outflow.

(d) National saving must equal domestic investment plus net capital outflow.

30. The People's Republic of China has had a large trade surplus in recent years. Which of the following is the most likely explanation of this surplus?

(a) China has a high rate of inflation, which reduces the value of its currency.

(b) China has a large supply of labor, so low wages give it a competitive edge.

(c) China has many trade barriers, which restrict the ability of other countries to sell their products in China.

(d) China has a large amount of saving relative to domestic investment.

Numerical/algebraic problems and short-essay questions

Please answer the following questions IN SEQUENCE. All questions may be answered in EITHER Chinese OR English.

1. Suppose the market for wine can be described by the following equations:

$$\text{Demand}: P = 60 - Q, \quad \text{Supply}: P = 2Q - 30,$$

where P is the price in dollars per bottle and Q is the quantity in millions of bottles.

(a) (4 points) What is the equilibrium price and quantity? Now suppose the government imposes a tax of $3 per bottle to reduce wine consumption and raise government revenues. What will the new equilibrium quantity of wine be?

(b) (4 points) Calculate the effects of the tax on consumer surplus, producer surplus and social welfare.

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2. (8 points) Customers attending baseball games at the local arena must pay for parking on the grounds and then pay for a ticket needed to enter the arena. If the arena manager knows that the customers' identical demands can be expressed collectively as $P = 25 - 0.000625Q$. How much of a parking fee could the management collect if the marginal cost of providing entertainment were a constant MC = \$10 per seat?

3. Consider a market where two firms produce a homogeneous good. The inverse market demand is given by $p = 24 - q_1 - q_2$ where q_1 and q_2 denote the quantities produced by firm 1 and 2, respectively. While there are no production costs incurred by firm 1, the cost function of firm 2 is given by

$$C_2(q_2) = \begin{cases} 0 & \text{if } q_2 = 0 \\ 49 & \text{if } q_2 > 0. \end{cases}$$

Suppose that the firms set quantities simultaneously.

(a) (4 points) Draw the best response curves.

(b) (4 points) Find all pure strategy Nash equilibria.

4. During the recent financial turmoil, the U.S. M1 money multiplier kept slipping and it even dropped below 1 in the early 2009.

(a) (2 points) What are the likely causes of this historically low level of the money multiplier?

(b) (3 points) How would such a low money multiplier affect the effectiveness of the monetary policy applied by the Federal Reserve Bank?

(c) (3 points) Suppose you work for Paul Volcker, the Chair of the U.S. President's Economic Recovery Advisory Board, in the capacity of an economic advisor. Please use the AD-AS model and other models, if necessary, to explain how you would suggest the government to fight the recession.

5. Recently as a result of the Federal Reserve's actions to save the financial institutions and markets, the monetary base of United States has been exploding. However, the increase in the broader monetary aggregate such as M2 is much more moderate.

(a) (2 points) Please suggest reasons explaining the M2's moderate growth despite the dramatic increase in monetary base.

(b) (2 points) Suppose you are a bank with \$100,000 in vault cash. When the central bank conducts open market operation to sell government bonds, you decide to use the \$100,000 to purchase these bonds to earn interest. How would your action affect the monetary base?

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(c) (2 points) Or, you simply decide to put the $100,000 in the reserve account of your bank at the central bank. How would this action affect the monetary base?

(d) (2 points) Please comment on the following statement: "When reserves pay interest (as the Fed now does), the monetary base becomes an uninteresting economic statistic."

6. (a) (4 points) "Faster population growth might increase a country's GDP, but it makes everyone poorer." Is the above statement true, false, or uncertain, and why?

(b) (5 points) Can capital accumulation itself sustain growth in GDP per capita in the long term? Why or why not?

備註	試題隨卷繳交

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1. (15%) There were 904 new Subway Restaurants franchises opened during 2002. Suppose that Subway wished to survey a simple random sample of the new franchisees to find out what percentage of them were totally pleased with their relationship with the company.

   (1) If Subway wanted to have 90% confidence in being with 3 percentage points of the population percentage who are pleased, how many of the new franchisees would have to be included in the sample? (7%)

   (2) Suppose Subway has carried out the study, using the sample size determined in part (1), and 27.5% of the franchisees say they are pleased with their relationship with Subway. Construct and interpret the 95% confidence interval for the population percentage. (8%)

2. (20%) Let Y_1 and Y_2 have the joint probability density function given by

$$f(y_1, y_2) = \begin{cases} ky_1, & 0 \le y_2 \le y_1 \le 1 \\ 0, & \text{elsewhere.} \end{cases}$$

   (1) Find the value of k that makes this a probability density function. (5%)

   (2) Find the marginal density function for Y_1. (7%)

   (3) Find $P(Y_2 > 0.5 | Y_1 > 0.75)$. (8%)

3. (20%) A random sample of 500 measurements on the length of stay in hospitals had sample mean 5.4 days and sample standard deviation 3.1 days. A national regulatory agency hypothesizes that average length of stay is in excess of 5 days.

   (1) Do the data support this hypothesis? Use $\alpha = .05$ (6%)

   (2) Find the p-value for the test, and explain what it means. (6%)

   (3) Using the rejection region found in part (1), calculate the probability of committing a type II error, denoted by β, when the average length of stay, μ_a, is 5.5. (8%)

4. (20%) The following data represent the distribution of ages for a sample of observed purchasers of professional baseball game tickets. Use the chi-square goodness-of-fit test to determine whether this distribution is the normal distribution. Assume that $\alpha = 0.05$.

備註	試題隨卷繳交

考試科目	統計學	所別	財務管理(4171)	考試時間	3月7日(日)第3節

Age of purchaser	Frequency
10-under 20	16
20-under 30	44
30-under 40	61
40-under 50	56
50-under 60	35
60-under 70	19

5. **(25%)** The following table lists a sample of automatic teller machine (ATM) customers: time (seconds) to complete their transaction, age, and gender (1=male, 0=female).

Time	Age	Gender
76	47	0
70	42	1
76	46	0
42	35	1
66	26	1
57	30	1
53	33	1
67	66	0
81	45	0
76	64	0
70	47	1
75	27	0
73	46	0
72	49	1

The computer printouts are as follows.

	Estimate	Std. Error
Intercept	69.49	11.48
Age	0.11	0.23
Gender	-12.19	5.31

Residual standard error: 8.72, F-statistic: 4.27

(1) Determine the regression equation and interpret the partial regression coefficients. (6%)

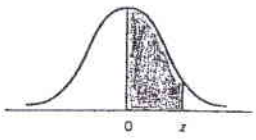
(2) Please construct an analysis of variance table for this regression model and interpret the results. (7%)

(3) Determine the values of R^2 and adjusted R^2, and compare their difference. (7%)

(4) Compute the standard error of the regression model and compare it with the standard deviation of the response variable, time to complete a transaction. (5%)

考試科目	統計學	所別	財務管理	考試時間	3月7日(日)第3節

Normal Probabilities



z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990

備註	試題隨卷繳交

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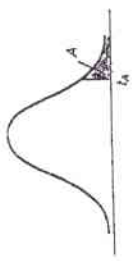
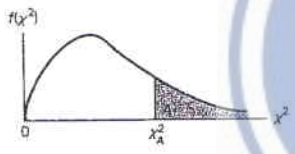
Critical Values of t



DEGREES OF FREEDOM	$t_{.100}$	$t_{.050}$	$t_{.025}$	$t_{.010}$	$t_{.005}$
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

Critical Values of χ^2

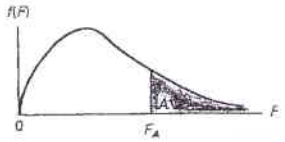


DEGREES OF FREEDOM	$\chi^2_{.995}$	$\chi^2_{.990}$	$\chi^2_{.975}$	$\chi^2_{.950}$	$\chi^2_{.900}$	$\chi^2_{.100}$	$\chi^2_{.050}$	$\chi^2_{.025}$	$\chi^2_{.010}$	$\chi^2_{.005}$
1	0.0000393	0.0001571	0.0009821	0.0039321	0.0157908	2.70554	3.84146	5.02389	6.63490	7.87944
2	0.0100251	0.0201007	0.0506356	0.102587	0.210720	4.60517	5.99147	7.37776	9.21034	10.5966
3	0.0717212	0.114832	0.215795	0.351846	0.584375	6.25139	7.81473	9.34840	11.3449	12.8381
4	0.206990	0.297110	0.484419	0.710721	1.063623	7.77944	9.48773	11.1433	13.2767	14.8602
5	0.411740	0.554300	0.831211	1.145476	1.61031	9.23635	11.0705	12.8325	15.0863	16.7496
6	0.675727	0.872085	1.237347	1.63539	2.20413	10.6446	12.5916	14.4494	16.8119	18.5476
7	0.989265	1.239043	1.68987	2.16735	2.83311	12.0170	14.0671	16.0128	18.4753	20.2777
8	1.344419	1.646482	2.17973	2.73264	3.48954	13.3616	15.5073	17.5346	20.0902	21.9550
9	1.734926	2.087912	2.70039	3.32511	4.16816	14.6837	16.9190	19.0228	21.6660	23.5893
10	2.15585	2.55821	3.24697	3.94030	4.86518	15.9871	18.3070	20.4831	23.2093	25.1882
11	2.60321	3.05347	3.81575	4.57481	5.57779	17.2750	19.6751	21.9200	24.7250	26.7569
12	3.07382	3.57056	4.40379	5.22603	6.30380	18.5494	21.0261	23.3367	26.2170	28.2995
13	3.56503	4.10691	5.00874	5.89186	7.04150	19.8119	22.3621	24.7356	27.6883	29.8194
14	4.07468	4.66043	5.62872	6.57063	7.78953	21.0642	23.6848	26.1190	29.1413	31.3193
15	4.60094	5.22935	6.26214	7.26094	8.54675	22.3072	24.9958	27.4884	30.5779	32.8013
16	5.14224	5.81221	6.90766	7.96164	9.31223	23.5418	26.2962	28.8454	31.9999	34.2672
17	5.69724	6.40776	7.56418	8.67176	10.0852	24.7690	27.5871	30.1910	33.4087	35.7185
18	6.26481	7.01491	8.23075	9.39046	10.8649	25.9894	28.8693	31.5264	34.8053	37.1564
19	6.84398	7.63273	8.90655	10.1170	11.6509	27.2036	30.1435	32.8523	36.1908	38.5822
20	7.43386	8.26040	9.59083	10.8508	12.4426	28.4120	31.4104	34.1696	37.5662	39.9968
21	8.03366	8.89720	10.28293	11.5913	13.2396	29.6151	32.6705	35.4789	38.9321	41.4010
22	8.64272	9.54249	10.9823	12.3380	14.0415	30.8133	33.9244	36.7807	40.2894	42.7956
23	9.26042	10.19567	11.6885	13.0905	14.8479	32.0069	35.1725	38.0757	41.6384	44.1813
24	9.88623	10.8564	12.4011	13.8484	15.6587	33.1963	36.4151	39.3641	42.9798	45.5585
25	10.5197	11.5240	13.1197	14.6114	16.4734	34.3816	37.6525	40.6465	44.3141	46.9278

備註	試題隨卷繳交

考試科目	統計學	所別	財務管理 4171	考試時間	3月7日(日)第3節

Critical Values of F: $A = .05$



ν_2 \ ν_1	NUMERATOR DEGREES OF FREEDOM								
DENOMINATOR DEGREES OF FREEDOM	1	2	3	4	5	6	7	8	9
1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	240.5
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04
120	3.92	3.07	2.68	2.45	2.29	2.17	2.09	2.02	1.96
∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88

備註	試題隨卷繳交

考試科目	微積分	所別	財管 4171	考試時間	3月7日(A)第3節

1. (5 points each)

(1) Find $\lim_{x\to+\infty} \frac{(x^2+2)^{\frac{1}{2}}}{3x-6}$.

(2) $x^2y + 3xy^3 - x = 3$, find dy/dx.

(3) $y = (x^3+7x^2-8)(2x^{-3}+x^{-4})$, find dy/dx.

(4) Find the maximum and minimum values of $f(x) = x^{\frac{2}{3}}(20-x)$ on the given closed interval $[-1, 20]$ and state where these values occur.

(5) Evaluate $\sum_{k=1}^{30} k(k-2)(k+2)$.

(6) Let $f(x) = 1 - \frac{x}{2}$, find $\int_0^2 f(x)\,dx$.

(7) Evaluate $\int_0^2 |2x-3|\,dx$.

(8) Evaluate $\int_a^{+\infty} \frac{x}{(x^2+1)^2}\,dx$.

2. Use implicit differentiation to find d^2y/dx^2 if $4x^2 - 2y^2 = 9$. (10 points)

3. Find the area enclosed by the curve $y = \sqrt{x}$, the tangent to the curve at $x=4$, and the y-axis. (15 points)

4. Solve the equation $x\frac{dy}{dx} - y = x$, where $x > 0$. (15 points)

5. The differential equation $\frac{dy}{dt} = ay - by^2$ $(a>0, b>0)$, which is called the "logistic equation", arises in the study of human population growth.

(a) By solving the equation, show that its general solution is

$$y = a/(b + Ce^{-at})$$ where C is an arbitrary constant.

(b) Find $\lim_{t\to+\infty} y(t)$. (20 points)

備註	試題隨卷繳交