

考試科目	經濟學	系所別	商學院共同科	考試時間	2 月 18 日 (一) 第一節
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一、Multiple Choice (1 point each)

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

1. One would expect to observe diminishing marginal product of labor when
  - A. workers are discouraged about the lack of help from other workers.
  - B. crowded office space reduces the productivity of new workers.
  - C. union workers are told to reduce their work effort in preparation for a new round of collective bargaining talks.
  - D. only new workers are trained in using the most productive capital.
  
2. Comparing marginal revenue to marginal cost
  - (i) reveals the contribution of the last unit of production to total profit.
  - (ii) is helpful in making profit maximization production decisions.
  - (iii) always reveals whether a firm is making an economic profit.
  - (iv) tells a firm whether its fixed costs are too high.
  - A. (i) and (ii) only
  - B. (iii) only
  - C. (ii) and (iii) only
  - D. All of the above are correct.
  
3. The monopolist's profit-maximizing quantity of output is determined by the intersection of which of the following two curves?
  - A. marginal cost and demand
  - B. average cost and demand
  - C. marginal cost and marginal revenue
  - D. average cost and marginal revenue
  
4. One key difference between an oligopoly market and a competitive market is that
  - A. oligopolistic firms are interdependent while competitive firms are not.
  - B. oligopolistic firms sell completely unrelated products while competitive firms do not.
  - C. oligopolistic firms sell their product at a price equal to marginal cost while competitive firms do not.
  - D. oligopolistic firms are price takers while competitive firms are not.

備

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- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。

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5. When advertising encourages customers to become more informed about all firms in the market,
- demand curves for specific brands in the market are likely to become less elastic.
  - each firm is likely to have less market power.
  - firms are able to foster stronger brand loyalty.
  - the market power of individual firms is strengthened.
6. David faces choices between Apple and Banana. He feels that having five apples and three bananas (5,3) is not different from having four apples and six bananas (4,6). Which following statement(s) is (are) possibly correct if Ethan's indifferent curves are downward-sloping?
- Ethan feels (4, 4.8) is as good as (5, 3).
  - Ethan feels (6, 2) is as good as (4, 6).
- (i)
  - (ii)
  - (i) and (ii)
  - None of the above is correct.
7. John and Ethan both work eight hours a day. In one day, John can make 4 cakes or 8 ice cream, whereas Ethan can make 2 cakes or 5 ice cream. Given this, which statement(s) is (are) correct?
- Ethan has a lower opportunity cost in producing ice cream than John.
  - John has an absolute advantage in producing both goods.
  - It is not beneficial for John to trade with Ethan.
- (i) and (ii)
  - (i) and (iii)
  - (ii) and (iii)
  - (i), (ii), and (iii)
8. Which following statement(s) is (are) correct?
- A Giffen good is always an inferior good.
  - A Giffen good is a good that its income effect is larger than its substitution effect.
- (i)
  - (ii)
  - (i) and (ii)
  - None of the above is correct.

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9. John, Ethan, and Mary decide to buy a bike together and share the ownership. Their willingness to pay for each choice is in the following table

	John	Ethan	Mary
Bike A	\$800	\$300	\$500
Bike B	\$700	\$450	\$500
Bike C	\$600	\$500	\$500
Bike D	\$500	\$550	\$500
Bike E	\$400	\$650	\$500

They will choose the bike that all three agree to buy. Which following statement(s) is(are) correct?

- (i) The bike will be a public good among them.  
(ii) If three people share the cost and all bikes have the same price, \$1500, the choice that maximizes aggregate surplus will be chosen.

- A. (i)  
B. (ii)  
C. (i) and (ii)  
D. None of the above is correct.

10. Suppose Country A proposes to impose a tax on a good. One report from an economist argues that this tax will increase producers' before-tax total revenue and make the producers bear relatively more tax burden than consumers. Which following statement is correct for the good?

- A. The price elasticity of demand is 1.8; the price elasticity of supply is 0.8.  
B. The price elasticity of demand is 0.9; the price elasticity of supply is 0.3.  
C. The price elasticity of demand is 0.6; the price elasticity of supply is 1.4.  
D. There is not enough information to answer the question.

11. In a certain economy, when income is \$1000, consumer spending is \$800. The value of the multiplier for this economy is 2.5. It follows that, when income is \$1060, consumer spending is

- A. \$815.  
B. \$836.  
C. \$900.  
D. \$950.

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12. Which of the following is not a reason that paying efficiency wages may increase a firm's profit?
- Efficiency wages increase worker health and therefore increase worker productivity.
  - Efficiency wages decrease worker turnover and therefore decrease hiring and training costs.
  - Efficiency wages decrease worker shirking and therefore increase worker productivity.
  - Efficiency wages are below the equilibrium wage rate but still attract high quality workers.
13. If the Federal Reserve accommodates an adverse supply shock,
- inflation expectations may rise which shifts the short-run Phillips curve shifts right.
  - inflation expectations may rise which shifts the short-run Phillips curve shifts left.
  - inflation expectations may fall which shifts the short-run Phillips curve shifts right.
  - inflation expectations may fall which shifts the short-run Phillips curve shifts left.
14. If a local bank decides to convert some of its U.S. Treasury securities into cash, which it will hold in its vault, what impact will this have on the bank's balance sheet?
- Reserves would increase, liabilities would stay the same, and owner's equity would decrease.
  - Reserves would increase, liabilities would stay the same, and owner's equity would increase.
  - Reserves would decrease, liabilities would decrease, and owner's equity would decrease.
  - Reserves would decrease, liabilities would stay the same, and owner's equity would decrease.
15. Matilda just graduated from college. In order to devote all her efforts to college, she didn't hold a job. She is going to tour around the country on her motorcycle for a month before she starts looking for work. Other things the same, the unemployment rate
- increases, and the labor-force participation rate decreases.
  - and the labor-force participation rate both increase.
  - increases, and the labor-force participation rate is unaffected.
  - and the labor-force participation rate are both unaffected.
16. In an IS-LM model, if the government adopts a loose monetary policy and a tight fiscal policy simultaneously,
- interest rate increases, while output stays the same.
  - interest rate stays the same, while output decreases.
  - interest rate change is uncertain, while output increases.
  - interest rate decreases, while output changes is uncertain.

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17. In a small open economy, a loose fiscal policy coupled with an increase in import tariff will cause domestic currency to

- A. increase.
- B. decrease.
- C. remain the same.
- D. change in an uncertain direction.

18. Assuming, in a two-period model, that the nominal wage rate increases from \$10/hour to \$15/hour; the expected price level increases from 1 to 3; and the actual price level increases from 4 to 5, we can deduce that

- A. nominal wage rate decreases.
- B. expected real wage rate increases.
- C. actual real wage rate increases.
- D. All of the above are correct.

19. Suppose the objective function of a government is described by  $W(u, \pi) = (u + 5\pi^2)$  where  $u$  is the unemployment rate, and  $\pi$  is the inflation rate, while the Phillips curve is described by  $\pi = \pi^e - 2(u - u^*)$  where  $\pi^e$  is the expected inflation rate, and  $u^*$  is the natural rate of unemployment. Which of the following inflation rate is a credible promise that the government can make?

- A. 0%
- B. 2%
- C. 5%
- D. 10%

20. If the central bank announces a decrease in money supply while keeping the actual money supply unchanged, the rational expectations theory would predict

- A. both output and price remain unchanged.
- B. output increases, while price decreases.
- C. output decreases, while price increases.
- D. output remains unchanged, while price decreases.

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## 二、Problems and Short-essay Questions

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

1. Suppose there is a small country. It imports apples at the price of \$10 per bag. The demand curve is  $D = 400 - 10P$ . The supply curve is  $S = 50 + 5P$ . The country imposes a specific tariff so that the import is 50 bags. Answer the following questions.

- (5 points) Calculate the tariff imposed by the country.
- (5 points) Calculate the tariff revenue.
- (5 points) Calculate the consumption distortion loss.
- (5 points) Calculate the production distortion loss.

2. Suppose the demand curve of a specific kind of flower for Country A is  $Q^D = 200 - P$ , where  $Q^D$  is the quantity demanded and  $P$  is the price. The supply curve in the same market is  $Q^S = 3P$ , where  $Q^S$  is the quantity supplied.

A. (15 points) Suppose scientists find that the scent of this specific kind of flower can cure mental disorders. Hence, for each unit of the quantity demanded brings \$80 external benefit. Assume the world price  $P^W$  is \$60 and is not affected by Country A's policies. Considering this external benefit, should Country A export or import how many units of this good? Please draw a graph and label all relevant points. Also, please show your calculation.

B. (5 points) How can the government deal with the issue of the external benefit that is described above? Please clearly explain your answer.

3. In an imaginary economy, consumers buy only sandwiches and magazines. In 2016, the base year, a sandwich cost \$5 and a magazine cost \$4. The consumers bought 20 sandwiches and 25 magazines at these prices. In 2017, a sandwich cost \$6.

A. (8 points) If the consumer price index in 2017 was 125, then how much did a magazine cost in 2017?

B. (12 points) Suppose that consumers bought 30 sandwiches and 25 magazines in 2017. What was the growth rate of nominal GDP between 2016 and 2017? What was the growth rate of real GDP between 2016 and 2017? What was the GDP deflator in 2017?

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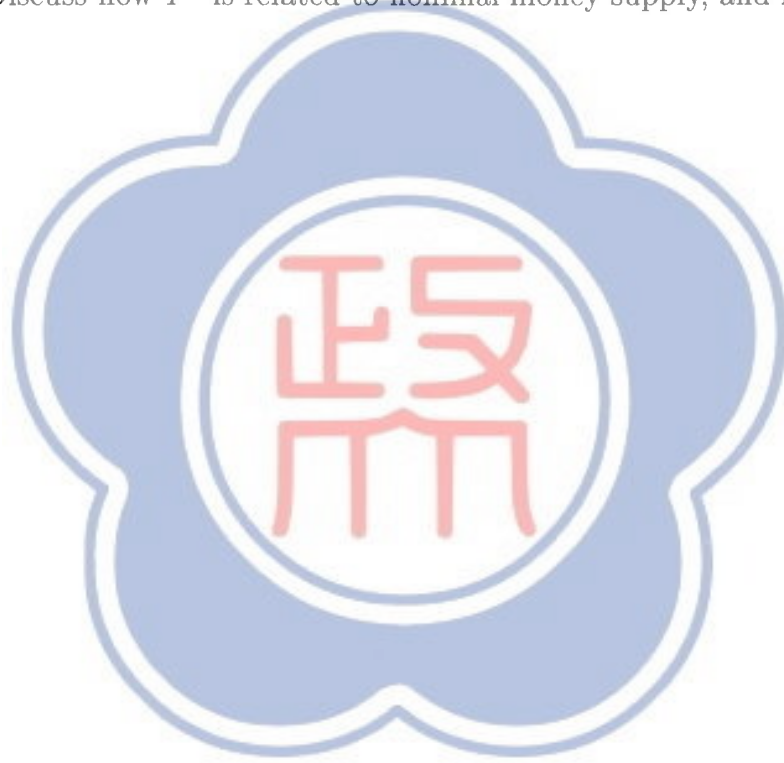
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4. Consider an economy with a consumption function  $C = C_0 + c \cdot Y_d$ , where  $Y_d$  represents disposable income; an investment function  $I = I_0 - b \cdot r$ , where  $r$  represents interest rate; tax revenue  $T = T_0 + t \cdot Y$ , where  $t$  represents tax rate; transfer payment  $TP$ ; a money demand function  $L = k \cdot Y - h \cdot r$ ; a money supply function,  $M = M_0/P$ , where  $M_0$  is the nominal money supply controlled by the central bank, and  $P$  represents the general price level.

A. (10 points) Derive the equilibrium output level  $Y^*$  when the goods market and the money market are in equilibrium simultaneously.

B. (10 points) Discuss how  $Y^*$  is related to nominal money supply, and how this relationship is affected by  $h$ .



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1. (20%) Police plan to enforce speed limits by using radar traps at 4 different locations within the city limits. The radar traps at each of the locations  $L_1$ ,  $L_2$ ,  $L_3$ , and  $L_4$  are operated 40%, 30%, 20%, and 30% of the time, and a person who is speeding on his way to work has probabilities of 0.2, 0.1, 0.5, and 0.2, respectively, of passing through these locations, respectively.
- (1) What is the probability that the person will receive a speeding ticket on his way to work? (10%)
- (2) If the person received a speeding ticket on his way to work, what is the probability that he passed through the radar trap located at  $L_2$ ? (10%)

2. (15%) A recent survey shows that 30% of potential buyers will purchase an electric powered car.
- (1) What is probability that over 160 in a sample of 500 potential buyers indicated that they would buy such a product? (7%)
- (2) An automobile manufacturer further states that it will be willing to mass produce these cars if more than 35% of potential buyers indicate they will purchase a newly designed electric car. In a sample of 500 potential buyers, 160 indicated that they would buy such a product. Should the manufacturer produce the new electric powered car at 95% confidence? (8%)

3. (15%) A men's clothing retailer stocks a variety of men shirts. The data record the type of sales during the last three months, indicating shirt style and size, which are as shown in the following table:

Size	Style		
	Button-down	Polo	Small print
Small	18	27	36
Medium	65	82	28
Large	103	65	22

Verify whether there is a relationship between shirt style and size at the 0.05 significant level.

4. (20%) A bank wishes to compare two companies ( $AA$  and  $BB$ ) about the methods they use to appraise the value of residential homes. The bank selected a sample of 10 residential properties and scheduled both firms for an appraisal. The results, reported in NT million, are as follows.

Home	1	2	3	4	5	6	7	8	9	10
$AA$	13.5	11.0	13.1	14.2	10.5	12.0	13.1	11.0	12.5	14.9
$BB$	12.8	10.5	11.9	14.0	9.8	12.3	12.7	11.5	12.2	14.5

- (1) Can we conclude there is a difference in the mean appraised values of the homes between these two companies using the 0.05 significant level? (10%)

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(2) Construct a 95% confidence interval for the mean difference of the appraised home values between these two companies. (10%)

5. (30%) The following regression output is the result of a multiple regression application, in which we are interested in explaining the variation in retail price of 36 personal computers based on three explanatory variables, CPU speed, RAM, hard drive capacity, and monitor included (1=Yes, 0 = No).

	Estimate	Standard Error
Constant	-62.75	771.67
CPU speed	0.22	2.62
RAM	4.52	2.99
Hard driver capacity	173.57	45.18
Monitor	19.00	237.84

$R^2=0.6961$

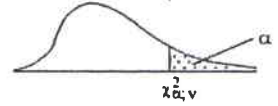
- (1) What is the variable, *Monitor*, called? What is the interpretation of the estimated coefficient for *Monitor* in the regression model? (5%)
- (2) Examine which variables could be omitted from the regression model. Test using a .05 level of significance. (12%)
- (3) Please fill in the values of (a)-(h) in the following analysis of variance table. (8%)

Source	df	SS	MS	F
Regression	(a)	(d)	(f)	(h)
Residual	(b)	(e)	(g)	
Total	(c)	49327249.56		

- (4) Compute the standard error for the regression model and interpret its meaning. (5%)

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Table of the Chi-square Distribution



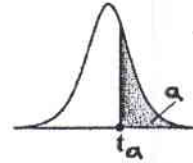
$\alpha =$	0.995	0.99	0.98	0.975	0.95	0.90	0.80	0.20	0.10	0.05	0.025	0.02	0.01	0.005	0.001	$=\alpha$
v = 1	0.000393	0.000157	0.000628	0.000982	0.00393	0.0158	0.0642	1.642	2.706	3.841	5.024	5.412	6.635	7.879	10.827	v = 1
2	0.0100	0.0201	0.0404	0.0506	0.103	0.211	0.446	3.219	4.605	5.991	7.378	7.824	9.210	10.597	13.815	2
3	0.0717	0.115	0.185	0.216	0.352	0.584	1.005	4.642	6.251	7.815	9.348	9.837	11.345	12.838	16.268	3
4	0.207	0.297	0.429	0.484	0.711	1.064	1.649	5.989	7.779	9.488	11.143	11.668	13.277	14.860	18.465	4
5	0.412	0.554	0.752	0.831	1.145	1.610	2.343	7.289	9.236	11.070	12.832	13.388	15.086	16.750	20.517	5
6	0.676	0.872	1.134	1.237	1.635	2.204	3.070	8.558	10.645	12.592	14.449	15.033	16.812	18.548	22.457	6
7	0.989	1.239	1.564	1.690	2.167	2.833	3.822	9.803	12.017	14.067	16.013	16.622	18.475	20.278	24.322	7
8	1.344	1.646	2.032	2.180	2.733	3.490	4.594	11.030	13.362	15.507	17.535	18.168	20.090	21.955	26.125	8
9	1.735	2.088	2.532	2.700	3.325	4.168	5.380	12.242	14.684	16.919	19.023	19.679	21.666	23.589	27.877	9
10	2.156	2.558	3.059	3.247	3.940	4.865	6.179	13.442	15.987	18.307	20.483	21.161	23.209	25.188	29.588	10
11	2.603	3.053	3.609	3.816	4.575	5.578	6.989	14.631	17.275	19.675	21.920	22.618	24.725	26.757	31.264	11
12	3.074	3.571	4.178	4.404	5.226	6.304	7.807	15.812	18.549	21.026	23.337	24.054	26.217	28.300	32.909	12
13	3.565	4.107	4.765	5.009	5.892	7.042	8.634	16.985	19.812	22.362	24.736	25.472	27.688	29.819	34.528	13
14	4.075	4.660	5.368	5.629	6.571	7.790	9.467	18.151	21.064	23.685	26.119	26.873	29.141	31.319	36.123	14
15	4.601	5.229	5.985	6.262	7.261	8.547	10.307	19.311	22.307	24.996	27.488	28.259	30.578	32.801	37.697	15
16	5.142	5.812	6.614	6.908	7.962	9.312	11.152	20.365	23.542	26.296	28.845	29.633	32.000	34.267	39.252	16
17	5.697	6.408	7.255	7.564	8.672	10.085	12.002	21.615	24.769	27.587	30.191	30.995	33.409	35.718	40.790	17
18	6.265	7.015	7.906	8.231	9.390	10.865	12.857	22.760	25.989	28.869	31.526	32.346	34.805	37.156	42.312	18
19	6.844	7.633	8.367	8.907	10.117	11.651	13.716	23.900	27.204	30.144	32.852	33.687	36.191	38.582	43.820	19
20	7.434	8.260	9.237	9.591	10.851	12.443	14.578	25.038	28.412	31.410	34.170	35.020	37.566	39.997	45.315	20
21	8.034	8.897	9.915	10.283	11.591	13.240	15.448	26.171	29.615	32.671	35.479	36.343	38.932	41.401	46.797	21
22	8.643	9.542	10.600	10.982	12.338	14.041	16.314	27.301	30.813	33.924	36.781	37.659	40.289	42.796	48.268	22
23	9.260	10.196	11.293	11.688	13.091	14.848	17.187	28.429	32.007	35.172	38.076	38.968	41.638	44.181	49.728	23
24	9.886	10.856	11.992	12.401	13.848	15.659	18.062	29.553	33.196	36.415	39.364	40.270	42.980	45.558	51.179	24
25	10.520	11.524	12.697	13.120	14.611	16.473	18.940	30.675	34.382	37.652	40.646	41.566	44.314	46.928	52.620	25
26	11.160	12.198	13.409	13.844	15.379	17.292	19.820	31.795	35.563	38.885	41.923	42.856	45.642	48.290	54.052	26
27	11.808	12.879	14.125	14.573	16.151	18.114	20.703	32.912	36.741	40.113	43.194	44.140	46.963	49.645	55.476	27
28	12.461	13.565	14.847	15.308	16.928	18.939	21.588	34.027	37.916	41.337	44.461	45.419	48.278	50.993	56.893	28
29	13.121	14.256	15.574	16.047	17.708	19.768	22.475	35.139	39.087	42.557	45.722	46.693	49.588	52.336	58.302	29
30	13.787	14.953	16.306	16.791	18.493	20.599	23.364	36.250	40.256	43.773	46.979	47.962	50.892	53.672	59.703	30
40	20.706	22.164	23.838	24.433	26.509	29.051	32.345	47.269	51.805	55.759	59.342	60.436	63.691	66.766	73.402	40
50	27.991	29.707	31.664	32.357	34.764	37.689	41.449	58.164	63.167	67.505	71.420	72.613	76.154	79.490	86.661	50
60	35.535	37.485	39.699	40.482	43.188	46.459	50.641	68.972	74.397	79.082	83.298	84.580	88.379	91.952	99.607	60
70	43.275	45.442	47.893	48.758	51.739	55.329	59.898	79.715	85.527	90.531	95.023	96.388	100.425	104.215	112.317	70
80	51.171	53.539	56.213	57.153	60.391	64.278	69.207	90.405	96.578	101.880	106.629	108.069	112.329	116.321	124.839	80
90	59.196	61.754	64.634	65.646	69.126	73.291	78.558	101.054	107.565	113.145	118.136	119.648	124.116	128.299	137.208	90
100	67.327	70.065	73.142	74.222	77.929	82.358	87.945	111.667	118.498	124.342	129.561	131.142	135.807	140.170	149.449	100

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Percentage Points of the  $t$  Distribution;  $t_{v, \alpha}$   
 $P(T > t_{v, \alpha}) = \alpha$



v	α													
	0.40	0.30	0.20	0.15	0.10	0.05	0.025	0.02	0.015	0.01	0.0075	0.005	0.0025	0.0005
1	0.325	0.727	1.376	1.963	3.078	6.314	12.706	15.895	21.205	31.821	42.434	63.657	127.322	636.590
2	0.289	0.617	1.061	1.386	1.886	2.920	4.303	4.849	5.643	6.965	8.073	9.925	14.089	31.598
3	0.277	0.584	0.978	1.250	1.638	2.353	3.182	3.482	3.896	4.541	5.047	5.841	7.453	12.924
4	0.271	0.569	0.941	1.190	1.533	2.132	2.776	2.999	3.298	3.747	4.088	4.604	5.598	8.610
5	0.267	0.559	0.920	1.156	1.476	2.015	2.571	2.757	3.003	3.365	3.634	4.032	4.773	6.869
6	0.265	0.553	0.906	1.134	1.440	1.933	2.447	2.612	2.829	3.143	3.372	3.707	4.317	5.959
7	0.263	0.549	0.896	1.119	1.415	1.895	2.365	2.517	2.715	2.998	3.203	3.499	4.029	5.408
8	0.262	0.546	0.889	1.108	1.397	1.860	2.306	2.449	2.634	2.896	3.085	3.355	3.833	5.041
9	0.261	0.543	0.883	1.100	1.383	1.833	2.262	2.398	2.574	2.821	2.998	3.250	3.690	4.781
10	0.260	0.542	0.879	1.093	1.372	1.812	2.228	2.359	2.527	2.764	2.932	3.169	3.581	4.587
11	0.260	0.540	0.876	1.088	1.363	1.796	2.201	2.328	2.491	2.718	2.879	3.106	3.497	4.437
12	0.259	0.539	0.873	1.083	1.356	1.782	2.179	2.303	2.461	2.681	2.836	3.055	3.428	4.318
13	0.259	0.538	0.870	1.079	1.350	1.771	2.160	2.282	2.436	2.650	2.801	3.012	3.372	4.221
14	0.258	0.537	0.868	1.076	1.345	1.761	2.145	2.264	2.415	2.624	2.771	2.977	3.326	4.140
15	0.258	0.536	0.866	1.074	1.341	1.753	2.131	2.249	2.397	2.602	2.746	2.947	3.286	4.073
16	0.258	0.535	0.865	1.071	1.337	1.746	2.120	2.235	2.382	2.583	2.724	2.921	3.252	4.015
17	0.257	0.534	0.863	1.069	1.333	1.740	2.110	2.224	2.368	2.567	2.706	2.898	3.222	3.965
18	0.257	0.534	0.862	1.067	1.330	1.734	2.101	2.214	2.356	2.552	2.689	2.878	3.197	3.922
19	0.257	0.533	0.861	1.066	1.328	1.729	2.093	2.205	2.346	2.539	2.674	2.861	3.174	3.883
20	0.257	0.533	0.860	1.064	1.325	1.725	2.086	2.197	2.336	2.528	2.661	2.845	3.153	3.850
21	0.257	0.532	0.859	1.063	1.323	1.721	2.080	2.189	2.328	2.518	2.649	2.831	3.135	3.819
22	0.256	0.532	0.858	1.061	1.321	1.717	2.074	2.183	2.320	2.508	2.639	2.819	3.119	3.792
23	0.256	0.532	0.858	1.060	1.319	1.714	2.069	2.177	2.313	2.500	2.629	2.807	3.104	3.768
24	0.256	0.531	0.857	1.059	1.318	1.711	2.064	2.172	2.307	2.492	2.620	2.797	3.091	3.745
25	0.256	0.531	0.856	1.058	1.316	1.708	2.060	2.167	2.301	2.485	2.612	2.787	3.078	3.725
26	0.256	0.531	0.856	1.058	1.315	1.706	2.056	2.162	2.296	2.479	2.605	2.779	3.067	3.707
27	0.256	0.531	0.855	1.057	1.314	1.703	2.052	2.158	2.291	2.473	2.598	2.771	3.057	3.690
28	0.256	0.530	0.855	1.056	1.313	1.701	2.048	2.154	2.286	2.467	2.592	2.763	3.047	3.674
29	0.256	0.530	0.854	1.055	1.311	1.699	2.045	2.150	2.282	2.462	2.586	2.756	3.038	3.659
30	0.256	0.530	0.854	1.055	1.310	1.697	2.042	2.147	2.278	2.457	2.581	2.750	3.030	3.646
40	0.255	0.529	0.851	1.050	1.303	1.684	2.021	2.123	2.250	2.423	2.542	2.704	2.971	3.551
60	0.254	0.527	0.848	1.045	1.296	1.671	2.000	2.099	2.223	2.390	2.504	2.660	2.915	3.460
120	0.254	0.526	0.845	1.041	1.289	1.658	1.980	2.076	2.196	2.358	2.468	2.617	2.860	3.373
∞	0.253	0.524	0.842	1.036	1.282	1.645	1.960	2.054	2.170	2.326	2.432	2.576	2.807	3.291

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	國際經營與貿易學系	考試時間	2月18日(一) 第三節
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Table of the 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	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	0.9031	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	0.9924	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	0.9958	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

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	系所別	國際經營與貿易	考試時間	2月18日(一)第三節
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Show your calculation to receive full credit.

1. (30 points) Evaluate the following limits:

$$(a) \lim_{x \rightarrow 0} \frac{\sin x}{x} \quad (b) \lim_{x \rightarrow 0^+} \frac{\sin x}{x^2}$$

2. (30 points) Evaluate the following integrals:

$$(a) \int_0^{\infty} x^2 e^{-x^2} dx \quad (b) \int_1^n \log x dx$$

3. (20 points) Suppose a amount of NT\$100 is deposited in SuperBank which pays an annual interest rate of 100%. Find the value of the account at end of the year if

- (a) the interest is compounded monthly  
 (b) the interest is compounded continuously

4. (20 points) Let  $g(\beta) = \|\mathbf{y} - X\beta\|^2 + 0.5\|\beta\|^2$ , where  $X$  is an  $n \times p$  matrix whose  $i$ th row is  $\mathbf{x}_i = (x_{i1}, \dots, x_{ip})$ ,

$$\mathbf{y} = \begin{bmatrix} y_1 \\ \vdots \\ y_n \end{bmatrix} \quad \text{and} \quad \beta = \begin{bmatrix} \beta_1 \\ \vdots \\ \beta_p \end{bmatrix}.$$

The notation  $\|\cdot\|^2$  represents the Euclidean norm; that is, for any  $\mathbf{a} = (a_1, \dots, a_p)$  in  $\mathbb{R}^p$ ,  $\|\mathbf{a}\|^2 := \sum_{i=1}^p a_i^2$ . Assume that  $X$  and  $\mathbf{y}$  are known. Find  $\beta$  that minimizes  $g$ .

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	商 事 法	系所別	國際經營與貿易學系 國際經貿法組	考試時間	2 月 18 日(一)第一節
<p>本試題共六小題。答題詳簡，請斟酌各小題配分比重。並請備具理由，兼從正、反立論作答。</p> <p>甲、乙兩人各自出資新臺幣（下同）5000 萬元設立 A 股份有限公司（非公開發行股票），已發行股份總數為 1000 萬股，每股面額 10 元，實收資本額 1 億元。A 公司股東會決議選舉 3 董 1 監，由甲、乙及丙（甲之妻）擔任董事，由丁（乙之妻）擔任監察人，並推舉乙擔任董事長，甲則兼任 A 公司總經理。A 公司主要從事自行車零件之製造。</p> <p>民國 107 年 11 月 1 日甲以書面請求董事長乙召開董事會討論發行員工認股權憑證事宜，直到同年 11 月 16 日仍未見乙通知召開董事會，甲遂於 11 月 16 日當日與丙聯名寄發通知給乙，但漏未通知丁，載明將於 11 月 20 日召開董事會。</p> <p>當日，僅甲、乙、丙三人出席董事會（丁未出席），討論議案有二：1. 依公司法第 167 條之 2 規定，根據公司章程所定「員工認股權憑證發行及認股辦法」與「員工認股權契約」，發行員工認股權憑證；2. 因應員工認股權憑證之發行，辦理發行新股 50,000 股普通股。上開二議案經表決，均為董事甲、丙表示同意，董事長乙表示反對，因而照案通過。依該辦法規定，認股權人以本公司在職正式員工為限。認股資格及所得認股之數量，將參酌年資、職級、整體貢獻或特殊功績，由董事會決定。另規定認股價格，每股訂為 80 元整；認購股份之種類為普通股。</p> <p>嗣後 A 公司董事會依據前開辦法決定由甲、戊（甲與丙之子，A 公司協理）、己（甲與丙之媳婦，A 公司經理）、庚（丙之外甥，A 公司廠長）等四人為有認股權之員工，各認購 12,500 股，每股 80 元，每人認股金額為 100 萬元，均於同年 12 月 10 日將款項匯入 A 公司帳戶，A 公司遂於同年 12 月 15 日向經濟部申請員工認股權憑證發行新股變更登記，A 公司發行股數由 1000 萬股增為 1005 萬股。</p> <p>另查 A 公司之前於 107 年 6 月 17 日召開 107 年度股東常會時，就 A 公司 106 年度盈餘分派案提請承認，決議通過依法提列法定盈餘公積 450 萬元，提撥 4200 萬元盈餘分派與股東。由於 11 月 20 日召開的董事會上以臨時動議討論如何發放盈餘，均無共識，擬提股東臨時會討論。復因乙遲遲不回應甲召集股東臨時會之請求，甲遂聯合戊、己、庚召集 A 公司股東臨時會訂於 107 年 12 月 31 日舉行，此次股東臨時會之召集甲未申請主管機關之許可，但已於 12 月 20 日通知所有股東，通知召集之事由載明：1. 盈餘分派議案：提議「保留 106 年度盈餘，不予分派」；2. 修改章程議案：章程載明 A 公司得發行複數表決權之特別股。3. 轉投資議案：以公司資本 5000 萬元購買 B 股份有限公司股份。股東臨時會當日有代表已</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>				

考試科目	商事法	系所別	國際經營與貿易學系 國際經貿法組	考試時間	2 月 18 日(一)第一節
<p>發行股份總數 100% 比例股東出席，對前開三項議案，除乙（股份比例 49.75%）均表示不同意外，其他股東皆表示同意。</p> <p>其間，A 公司於 107 年 10 月間出售一批自行車零件予位於香港之 C 公司，約定價金為 50 萬元，並以 CFR 為貿易條件，A 公司隨即委託 D 公司以海運方式承攬運送該批零件至香港，並由 D 公司簽發載貨證券，D 公司另委託 E 公司以 E 之船舶實際運送。C 公司則以自己為被保險人就該批零件向 F 公司投保保險。E 之船舶於 107 年 11 月 10 日上午 6 時自基隆港啟航，於同日上午 8 時發生主機第 4 缸不噴油之情事，經船員辛通知船長王後，船長王建議船員辛可嘗試重新啟動主機並決定停機，惟停機後該船舶之主機即無法再次啟動運轉，終因失去動力而擱淺於石門外海，後因海象持續惡劣，其船體於 107 年 12 月斷裂為兩截。該批零件於本件事故受有全損，F 公司為保險契約之保險人，已給付保險金 50 萬元與 C 公司。經查該船舶於發航前業經特別檢查，確認船舶之狀態具備安全航行之能力，而主機故障之原因乃係船舶之隱有瑕疵，且因船長及船員處置失當，不應貿然停機所致。</p> <p>請根據新修正通過之公司法，及保險法、海商法，備具理由，依序回答下列問題：</p> <p>(一) 107 年 11 月 20 日董事會之召集程序是否合法？乙主張該次董事會 1. 非經董事長召集；2. 召集通知期限短於 7 日；3. 未通知監察人等原因，屬不合法之召集，董事會決議應屬無效，是否有理由？（10%）</p> <p>(二) 107 年 12 月 31 日股東臨時會之召集程序是否合法？（10%）</p> <p>(三) A 公司董事會決定由甲、戊、己、庚四人為有認股權之員工所為之決議是否合法有效？乙主張：1. 甲為公司董事；2. 戊、己、庚三人認股之資金實際上皆由甲代為出資，此等認股權之決議顯係以損害乙之利益為主要目的之安排，違反民法第 148 條第 1 項之規定，應為無效，是否有理由？（20%）</p> <p>(四) 基於經濟部業已變更 A 公司發行新股登記之事實，請問 107 年 12 月 31 日股東臨時會所做成三項決議（保留盈餘不分派、複數表決權股、轉投資）各自之效力為何？（30%）</p> <p>(五) F 公司得否以自己之名義請求 D 公司賠償 50 萬元之損害？（15%）</p> <p>(六) D 公司對於該批零件之毀損可否援引海商法第 69 條之免責事由，不負賠償責任？（15%）</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>				

考試科目	商專法	系所別	國際經營與貿易學系 國際經貿法組	考試時間	二月 18 日(一)第一節
<p>本試題共六小題。答題詳簡，請斟酌各小題配分比重。並請備具理由，兼從正、反立論作答。</p> <p>甲、乙兩人各自出資新臺幣（下同）5000 萬元設立 A 股份有限公司（非公開發行股票），已發行股份總數為 1000 萬股，每股面額 10 元，實收資本額 1 億元。A 公司股東會決議選舉 3 董 1 監，由甲、乙及丙（甲之妻）擔任董事，由丁（乙之妻）擔任監察人，並推舉乙擔任董事長，甲則兼任 A 公司總經理。A 公司主要從事自行車零件之製造。</p> <p>民國 107 年 11 月 1 日甲以書面請求董事長乙召開董事會討論發行員工認股權憑證事宜，直到同年 11 月 16 日仍未見乙通知召開董事會，甲遂於 11 月 16 日當日與丙聯名寄發通知給乙，但漏未通知丁，載明將於 11 月 20 日召開董事會。</p> <p>當日，僅甲、乙、丙三人出席董事會（丁未出席），討論議案有二：1. 依公司法第 167 條之 2 規定，根據公司章程所定「員工認股權憑證發行及認股辦法」與「員工認股權契約」，發行員工認股權憑證；2. 因應員工認股權憑證之發行，辦理發行新股 50,000 股普通股。上開二議案經表決，均為董事甲、丙表示同意，董事長乙表示反對，因而照案通過。依該辦法規定，認股權人以本公司在職正式員工為限。認股資格及所得認股之數量，將參酌年資、職級、整體貢獻或特殊功績，由董事會決定。另規定認股價格，每股訂為 80 元整；認購股份之種類為普通股。</p> <p>嗣後 A 公司董事會依據前開辦法決定由甲、戊（甲與丙之子，A 公司協理）、己（甲與丙之媳婦，A 公司經理）、庚（丙之外甥，A 公司廠長）等四人為有認股權之員工，各認購 12,500 股，每股 80 元，每人認股金額為 100 萬元，均於同年 12 月 10 日將款項匯入 A 公司帳戶，A 公司遂於同年 12 月 15 日向經濟部申請員工認股權憑證發行新股變更登記，A 公司發行股數由 1000 萬股增為 1005 萬股。</p> <p>另查 A 公司之前於 107 年 6 月 17 日召開 107 年度股東常會時，就 A 公司 106 年度盈餘分派案提請承認，決議通過依法提列法定盈餘公積 450 萬元，提撥 4200 萬元盈餘分派與股東。由於 11 月 20 日召開的董事會上以臨時動議討論如何發放盈餘，均無共識，擬提股東臨時會討論。復因乙遲遲不回應甲召集股東臨時會之請求，甲遂聯合戊、己、庚召集 A 公司股東臨時會訂於 107 年 12 月 31 日舉行，此次股東臨時會之召集甲未申請主管機關之許可，但已於 12 月 20 日通知所有股東，通知召集之事由載明：1. 盈餘分派議案：提議「保留 106 年度盈餘，不予分派」；2. 修改章程議案：章程載明 A 公司得發行複數表決權之特別股。3. 轉投資議案：以公司資本 5000 萬元購買 B 股份有限公司股份。股東臨時會當日有代表已</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>				

考試科目	商事法	系所別	國際經營與貿易學系 國際經貿法組	考試時間	2 月 18 日(一)第一節
<p>發行股份總數 100% 比例股東出席，對前開三項議案，除乙（股份比例 49.75%）均表示不同意外，其他股東皆表示同意。</p> <p>其間，A 公司於 107 年 10 月間出售一批自行車零件予位於香港之 C 公司，約定價金為 50 萬元，並以 CFR 為貿易條件，A 公司隨即委託 D 公司以海運方式承攬運送該批零件至香港，並由 D 公司簽發載貨證券，D 公司另委託 E 公司以 E 之船舶實際運送。C 公司則以自己為被保險人就該批零件向 F 公司投保保險。E 之船舶於 107 年 11 月 10 日上午 6 時自基隆港啟航，於同日上午 8 時發生主機第 4 缸不噴油之情事，經船員辛通知船長王後，船長王建議船員辛可嘗試重新啟動主機並決定停機，惟停機後該船舶之主機即無法再次啟動運轉，終因失去動力而擱淺於石門外海，後因海象持續惡劣，其船體於 107 年 12 月斷裂為兩截。該批零件於本件事故受有全損，F 公司為保險契約之保險人，已給付保險金 50 萬元與 C 公司。經查該船舶於發航前業經特別檢查，確認船舶之狀態具備安全航行之能力，而主機故障之原因乃係船舶之隱有瑕疵，且因船長及船員處置失當，不應貿然停機所致。</p> <p>請根據新修正通過之公司法，及保險法、海商法，備具理由，依序回答下列問題：</p> <p>(一) 107 年 11 月 20 日董事會之召集程序是否合法？乙主張該次董事會 1. 非經董事長召集；2. 召集通知期限短於 7 日；3. 未通知監察人等原因，屬不合法之召集，董事會決議應屬無效，是否有理由？（10%）</p> <p>(二) 107 年 12 月 31 日股東臨時會之召集程序是否合法？（10%）</p> <p>(三) A 公司董事會決定由甲、戊、己、庚四人為有認股權之員工所為之決議是否合法有效？乙主張：1. 甲為公司董事；2. 戊、己、庚三人認股之資金實際上皆由甲代為出資，此等認股權之決議顯係以損害乙之利益為主要目的之安排，違反民法第 148 條第 1 項之規定，應為無效，是否有理由？（20%）</p> <p>(四) 基於經濟部業已變更 A 公司發行新股登記之事實，請問 107 年 12 月 31 日股東臨時會所做成三項決議（保留盈餘不分派、複數表決權股、轉投資）各自之效力為何？（30%）</p> <p>(五) F 公司得否以自己之名義請求 D 公司賠償 50 萬元之損害？（15%）</p> <p>(六) D 公司對於該批零件之毀損可否援引海商法第 69 條之免責事由，不負賠償責任？（15%）</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>				

考試科目	國際經濟法	系所別	國際經濟學系 / 國際經濟法組	考試時間	2月18日(一)第一節
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- 一、近日來數個 WTO 會員先後提出改革 WTO 之提案，其中包括針對上訴機構之運作提出數項建議（例如就其人數、任期、成員選任程序、審理期間、審理事項等），請介紹上訴機構之運作、目前所遭遇之困境、以及曾遭受會員所批評的爭議，並提出妳/你個人之評析。(20%)
- 二、2018 年底舉辦的公投案之一為有關來自日本之核食爭議，據報載，本公投案亦引發我國可能被日本提訴至 WTO 之風險，顯見食品安全與貿易自由化兩大重要政策目標間可能存在的衝突。WTO 下的食品安全與動植物防疫檢疫措施協定 (SPS 協定) 為有關食品安全的重要條約，請簡述 SPS 協定下重要的實體與程序法律原則，並將之以「貿易自由化」與「食品安全管制」兩大目標加以歸類。(25%)
- 三、美國於 2018 年間以國家安全為由，針對來自數個 WTO 會員之鋼鐵以及鋁等相關產品課徵 10% 到 25% 不等之關稅，此舉遭到九個 WTO 會員於 WTO 下提出請求諮商之要求，主張美國之措施不符合 GATT 以及防衛措施之規定，美國則以該措施為基於國家安全所訂為由，主張不受 WTO 爭端解決機制之管轄。請說明：
1. GATT 第 19 條以及防衛協定中，對於採取防衛措施所需要符合之實體法律要件；(15%)
  2. GATT 下有關國家安全之例外規定。(10%)
- 四、巴黎協定通過後，許多國家紛紛著手訂定降低溫室氣體排放之管制措施，例如課徵碳稅，但考慮到此舉可能對國內特定產業造成成本之上升，不利於其國際競爭力，故某些國家亦同時考慮訂定所謂的「碳邊境措施」，請試以針對碳稅採取邊境措施為例，分析該等措施於 GATT 下可能涉及之相關規範。(20%)
- 五、請試譯以下條文 (10%)
1. A decision by the Ministerial Conference granting a waiver shall state the exceptional circumstances justifying the decision, the terms and conditions governing the application of the waiver, and the date on which the waiver shall terminate. Any waiver granted for a period of more than one year shall be reviewed by the Ministerial Conference not later than one year after it is granted, and thereafter annually until the waiver terminates. In each review, the Ministerial Conference shall examine whether the exceptional circumstances justifying the waiver still exist and whether the terms and conditions attached to the waiver have been met. The Ministerial Conference, on the basis of the annual review, may extend, modify or terminate the waiver.
  2. Members shall ensure that their central government standardizing bodies accept and comply with the Code of Good Practice for the Preparation, Adoption and Application of Standards in Annex 3 to this Agreement (referred to in this Agreement as the "Code of Good Practice"). They shall take such reasonable measures as may be available to them to ensure that local government and non-governmental standardizing bodies within their territories, as well as regional standardizing bodies of which they or one or more bodies within their territories are members, accept and comply with this Code of Good Practice. In addition, Members shall not take measures which have the effect of, directly or indirectly, requiring or encouraging such standardizing bodies to act in a manner inconsistent with the Code of Good Practice. The obligations of Members with respect to compliance of standardizing bodies with the provisions of the Code of Good Practice shall apply irrespective of whether or not a standardizing body has accepted the Code of Good Practice.

備

註

- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。