

(橫書式)

國立中山大學八十七學年度碩博士班招生考試試題

科目：管理學 (公事所)

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一、解釋名詞 (答案請以150字為限，每題三分)

- 1、走動式管理
- 2、零基預算
- 3、ISO 9002
- 4、協力生產 (或協力廠商)
- 5、適用科技
- 6、衝突管理
- 7、都會行銷
- 8、損益平衡點
- 9、人本教育
- 10、綠色企管

二、問答題 (70%) (答案請簡單扼要)

- 1、非營利機構的宗旨和目標，通常都以公益性、教育性和服務性為主。如今有非營利組織行銷的潮流，請問可能會遇到什麼困難？應該如何解決？(20%)
- 2、近兩三年來企業性組織或組織再造已是普遍趨勢。請以你所熟悉的組織 (如就業單位、學習單位或其他參與單位) 為例，說明何謂企業性組織，及如何由現況調整改造，使其成為一個企業性組織？(50%)

(橫書式)

國立中山大學八十七學年度碩博士班招生考試試題

科目：經濟學 (台、粵、所、甲、乙、丙、丁、戊組) 共 2 頁 第 1 頁

1. True or False. Please explain your answers. (21%)

- (a) A maximum profit oriented firm should always quit when it has a loss.
- (b) Allocative efficiency occurs when marginal social cost equals marginal social benefit.
- (c) Based on the neoclassical theory of distribution, the real wage will fall and the real rental price of capital will rise if immigrant labor force raises significantly.
- (d) Old-age pension is included in Taiwan's GDP.
- (e) The statement of "Other things being equal, the higher the price of a good, the higher the consumption of substitutes of that good" is a prediction of the marginal utility theory.
- (f) According to the Economics of Welfare, perfect competition is a necessary condition for the Pareto-optimality.
- (g) The production function  $q = 20x_1x_2 - 3x_1^2 - 8x_2^2$  is of increasing returns to scale.

2. Please briefly (no more than 50 words) explain the following concepts (20%):

- (a) the paradox of value
- (b) diminishing marginal rates of substitution
- (c) Nash equilibrium
- (d) public good
- (e) sustainable development

3. Simple Calculation

- (a) Assume that the supply curve of any firm in industry  $X$  is  $S(P) = P/4$ . If a firm has 30 units of output, what is its total variable cost? (4%)
- (b) Assume that a monopolistic firm has (1) a production function  $q = 4L$ , (2) a demand curve  $P = 4 - q/40$ , and (3) wage  $4 + 0.1L$  per unit of labor, where  $L$  is the amount of labor it uses and  $q$  is the amount of product it produces. What is its profit-maximizing level of output? (5%)

4. 行政院近日來提出下半年施政重點，要以擴大內需帶動經濟成長，並將著重在公共投資的擴大執行。然政府的財政支出從事公共投資會發生乘數效果及排擠效果，請分別說明之。(10%)

(讀書式)

國立中山大學八十七學年度碩博士班招生考試試題

科目：經濟學 (公專所甲、乙、丙、丁、戊組)

共 2 頁 第 2 頁

5. 失業產生的原因不同，致失業的類型有多種。請說明失業的種類有那些？Keynes 認為失業的原因為何？(10%)

6. 有兩項投資計劃，其投資成本均為 100 萬元。A 計劃是一年後可回收 115 萬元，B 計劃是三年後可回收 131 萬元。當市場利率=5%時，請以現值法、益本比法、內在報酬率法比較 A、B 兩計劃的優先順序。何種方法較優？(15%)

7. 近日來民眾屢至教育部抗議高學費政策，試就經濟學觀點評論此高學費政策。並請嘗試提出可行的配套對策。(15%)

以下八題全需作答。前四題每題 12 分，後四題每題 13 分。未詳述計算或證明者不予評分。

1. 試計算下列極限：

$$(a) \lim_{x \rightarrow \infty} (\sqrt{x^2 + x} - x)$$

$$(b) \lim_{x \rightarrow 0} (1 - 2x)^{-1/x}$$

2. 試計算下列函數的微分  $\frac{dy}{dx}$ ：

$$(a) y = \sqrt{1 + 5 \cos^2 x}$$

$$(b) y = \frac{x^x (x-2)^3 (x-1)}{(x+1)^2}$$

3. 試計算下列積分：

$$(a) \int x \sec^2 x \, dx$$

$$(b) \int_0^1 \frac{x^3}{(1+x^2)^3} \, dx$$

4. 以下冪級數乃某些特定函數的 Maclaurin 級數展開式。試找到這些函數並計算級數的收斂區間。

$$(a) x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots + \frac{(-1)^k x^{2k+1}}{(2k+1)!} + \dots$$

$$(b) 1 - x^2 + x^4 - x^6 + \dots + (-1)^k x^{2k} + \dots$$

5. 試計算二重積分

$$\iint_R e^x dx dy$$

其中  $R$  為以  $(0,0)$ ,  $(0,1)$ ,  $(2,1)$  為頂點的三角形。

6. 陳君乃某百貨公司的推廣部經理，正在規劃來年的廣告預算。陳君手上的資料顯示電視廣告的次數  $T$  和登報廣告次數  $N$  對銷售額  $R$  有以下的影響：

$$R = 20T + 5N + 20TN - T^2$$

已知每次電視廣告需費 1000 元，而每則登報廣告需費 500 元。若廣告的預算為 100,000 元，問陳君應怎樣分配這筆經費，才使公司有最多的銷售額？

7. 函數  $f(x) = \begin{cases} x^2 \sin \frac{1}{x} & x \neq 0 \\ 0 & x = 0 \end{cases}$  定義在實線上。  
試求對任意實數  $x$ ， $f'(x)$  是甚麼？

8. 設  $f$  在  $[a,b]$  區間上連續，並且有  $f(m+x) = f(m-x)$ ，其中  $m = \frac{1}{2}(a+b)$  為區間的中點。  
試證  $\int_a^b x f(x) dx = m \int_a^b f(x) dx$ 。

1. The Ohio Valley Detergent Company has 30 subsidiaries located in the U.S. In an effort to relate the sales of each subsidiary to the surrounding population, a "canned" regression program, which is part of the *Statistical Package for the Social Sciences* (SPSS), was used to regress sales ( $y$ ) on population ( $x = \text{pop.}$ ). The following output was generated from the 30 subsidiaries. (20%)

VARIABLE	B	STD ERROR B	F ----- SIGNIFICANCE
POP	.53339673	.50520918E-01	111.47006 .000
(CONSTANT)	1386969.3	883403.06	2.4649940 .128

- Write the least-squares regression equation.
- What is the value of  $s_b$ ? Use this value to construct a  $t$ -test for  $H_0: \beta = 0$  versus  $H_a: \beta \neq 0$ , using  $\alpha = 0.01$ .
- Interpret the value 111.47006 in the last column of the output. What does the .000 below it represent? How are these values related to your answers to part (b)?
- What value of sales would you predict if population is 19,660,000?

2. Given the data for sales of boating supplies shown in Table 1. (15%)

- Give one representation of the trend equation for sales of boating supplies.
- Find seasonally adjusted sales for the four quarters of 1981.
- Assuming no change in the trend or seasonal pattern and assuming that other factors remain constant, forecast second-quarter sales for 1983.

Table 1

1981 Quarter	Actual Sales	Trend Values	Seasonal Index
1	100,000	90,000	80
2	150,000	95,000	130
3	120,000	100,000	110
4	110,000	105,000	80

3. The records at a large metropolitan hospital (Table 2), listed the following births during the three shifts of the day during a two-week period.

Table 2

	7 A.M. - 3 P.M.	3 P.M. - 11 P.M.	11 P.M. - 7 A.M.
Males	15	5	10
Females	5	10	15

- Determine the expected frequency in each cell. What null hypothesis is being tested with a  $\chi^2$ -test? (5%)
- How many degrees of freedom are there? At what level of significance can  $H_0$  be rejected? (10%)

- 4. (10%) 下屆北高兩市市長選舉，若以電話做民意調查，誤差來源可能有哪些？
- 5. (10%) 請舉例說明哪些問題可運用卡方檢定？
- 6. (5%) 請以文字來說明何謂拉丁方格設計？
- 7. 有一工程師希望研究材料與溫度對晶片壽命的影響，尤其希望知道若干材料的影響不顯著，則晶片的設計更具彈性(robust design)。以二因子完全設計所得實驗數據與 ANOVA 分析結果如下：

A (材料)	B (溫度)					
	15		70		125	
1	130	155	34	40	20	70
	74	180	80	75	82	58
2	150	188	136	122	25	70
	159	126	106	115	58	45
3	138	110	174	120	96	104
	168	160	150	139	82	60

變因	ANOVA			
	平方和(SS)	自由度(dof)	均方(MS)	F 值
材料(A)	10683.72	2	5341.86	7.91*
溫度(B)	39118.72	2	19558.36	28.97*
A × B	9613.78	4	2403.44	3.56*
誤差	18230.75	27	675.21	
總和	77646.97	35		

$F_{.05, 4, 27} = 2.73, F_{.05, 2, 27} = 3.35$

- (a) (8%) 請說明你將如何計算 SSE？(不需要計算出其數值)
  - (b) (7%) 請解釋 ANOVA 分析各項結果意義為何？
8. (a) (4%) 試說出兩種線性回歸常被濫用的情況
- (b) (6%) 兩變數  $x$ 、 $y$  之關係如下：

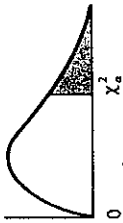
$y$	2.57	4.40	4.52	1.39	4.75	3.55	2.49	3.77
$x$	650	340	400	800	300	570	720	480

應如何以回歸線來表示這兩個變數之間的關係？

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Appendix

Percentage points of the chi-square distribution



APPENDIX

(continued)

d.f.	$\alpha = .995$	$\alpha = .990$	$\alpha = .975$	$\alpha = .950$	$\alpha = .900$	$\alpha = .10$	$\alpha = .05$	$\alpha = .025$	$\alpha = .010$	$\alpha = .005$	d.f.
1	0.0000393	0.0001571	0.0009821	0.0039321	0.0157908	2.70554	3.84146	5.02389	6.63490	7.87944	1
2	0.0100251	0.0201007	0.0506356	0.1021587	0.210720	4.60517	5.99147	7.37776	9.21034	10.5966	2
3	0.0717212	0.114832	0.215795	0.351846	0.584375	6.25139	7.81473	9.34840	11.3449	12.8381	3
4	0.206990	0.297110	0.484419	0.710721	1.063623	7.77944	9.48773	11.1433	13.2767	14.8602	4
5	0.411740	0.554300	0.831211	1.145476	1.61031	9.23635	11.0705	12.8325	15.0863	16.7496	5
6	0.675727	0.872085	1.237347	1.635339	2.20413	10.6446	12.5916	14.4494	16.8119	18.5476	6
7	0.989265	1.239043	1.68987	2.16735	2.83311	12.0170	14.0671	16.0128	18.4753	20.2777	7
8	1.344419	1.646482	2.17973	2.73264	3.48954	13.3616	15.5073	17.5346	20.0902	21.9550	8
9	1.734926	2.087912	2.70039	3.32561	4.16816	14.6837	16.9190	19.0228	21.6660	23.5893	9
10	2.15585	2.55821	3.24697	3.94030	4.86518	15.9871	18.3070	20.4831	23.2093	25.1882	10
11	2.60321	3.05347	3.81575	4.57481	5.57778	17.2750	19.6751	21.9200	24.7250	26.7569	11
12	3.07382	3.57056	4.40379	5.22603	6.30380	18.5494	21.0261	23.3367	26.2170	28.2995	12
13	3.56503	4.10691	5.00874	5.89186	7.04150	19.8119	22.3621	24.7356	27.6883	29.8194	13
14	4.07468	4.66043	5.62872	6.57063	7.78953	21.0642	23.6848	26.1190	29.1413	31.3193	14
15	4.60094	5.22935	6.28214	7.26094	8.54675	22.3072	24.9958	27.4884	30.5779	32.8013	15
16	5.14224	5.81221	6.90766	7.96164	9.31223	23.5418	26.2962	28.8454	31.9999	34.2672	16
17	5.69724	6.40776	7.56418	8.67176	10.0852	24.7690	27.5871	30.1910	33.4087	35.7185	17
18	6.26481	7.01491	8.23075	9.39046	10.8649	25.9894	28.8693	31.5264	34.8053	37.1564	18
19	6.84398	7.63273	8.90655	10.1170	11.6509	27.2036	30.1435	32.8523	36.1908	38.5822	19
20	7.43386	8.26040	9.59083	10.8508	12.4426	28.4120	31.4104	34.1696	37.5662	39.9968	20
21	8.03366	8.89720	10.28293	11.5913	13.2396	29.6151	32.6705	35.4789	38.9321	41.4010	21
22	8.64272	9.54249	10.9823	12.3380	14.0415	30.8133	33.9244	36.7807	40.2894	42.7956	22
23	9.26042	10.19567	11.6885	13.0905	14.8479	32.0069	35.1725	38.0757	41.6384	44.1813	23
24	9.88623	10.8564	12.4011	13.8484	15.6587	33.1963	36.4151	39.3641	42.9798	45.5585	24
25	10.5197	11.5240	13.1197	14.6114	16.4734	34.3816	37.6525	40.6465	44.3141	46.9278	25
26	11.1603	12.1981	13.8439	15.3791	17.2919	35.5631	38.8852	41.9232	45.6417	48.2899	26
27	11.8076	12.8786	14.5733	16.1513	18.1138	36.7412	40.1133	43.1944	46.9630	49.6449	27
28	12.4613	13.5648	15.3079	16.9279	18.9392	37.9159	41.3372	44.4607	48.2782	50.9933	28
29	13.1211	14.2565	16.0471	17.7083	19.7677	39.0875	42.5569	45.7222	49.5879	52.3356	29
30	13.7867	14.9535	16.7908	18.4926	20.5992	40.2560	43.7729	46.9792	50.8922	53.6720	30
40	20.7065	22.1643	26.5093	34.1642	29.5785	51.8050	55.7585	59.3417	63.6907	66.7659	40
50	27.9907	29.7067	32.3574	34.7642	37.6886	63.1671	67.5048	71.4202	76.1539	79.4900	50
60	35.5346	37.4848	40.4817	43.1879	46.4589	74.9970	79.0819	83.2976	88.3794	91.9517	60
70	43.2752	45.4418	48.7576	51.7393	55.3290	85.5271	90.5312	95.0231	100.425	104.215	70
80	51.1720	53.5400	57.1532	60.3915	64.2778	101.879	106.629	111.321	116.321	120.929	80
90	59.1963	61.7541	65.6466	69.1260	73.2912	113.145	118.136	122.902	128.299	133.021	90
100	67.3276	70.0648	74.2219	77.9295	82.3581	118.498	124.342	129.561	135.807	141.669	100

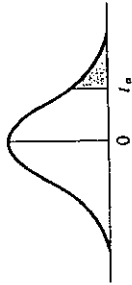
From "Tables of the Percentage Points of the  $\chi^2$  Distribution," *Biometrika*, Vol. 32 (1941), pp. 188-189, by Catherine M. Thompson. Reproduced by permission of the *Biometrika* Trustees.

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APPENDIX

Percentage points of the t distribution



d.f.	$\alpha = .10$	$\alpha = .05$	$\alpha = .025$	$\alpha = .010$	$\alpha = .005$
1	3.078	6.314	12.706	31.821	63.657
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.440	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.860	2.306	2.896	3.355
9	1.383	1.833	2.262	2.821	3.250
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106
12	1.356	1.782	2.179	2.681	3.055
13	1.350	1.771	2.160	2.650	3.012
14	1.345	1.761	2.145	2.624	2.977
15	1.341	1.753	2.131	2.602	2.947
16	1.337	1.746	2.120	2.583	2.921
17	1.333	1.740	2.110	2.567	2.898
18	1.330	1.734	2.101	2.552	2.878
19	1.328	1.729	2.093	2.539	2.861
20	1.325	1.725	2.086	2.528	2.845
21	1.323	1.721	2.080	2.518	2.831
22	1.321	1.717	2.074	2.508	2.819
23	1.319	1.714	2.069	2.500	2.807
24	1.318	1.711	2.064	2.492	2.797
25	1.316	1.708	2.060	2.485	2.787
26	1.315	1.706	2.056	2.479	2.779
27	1.314	1.703	2.052	2.473	2.771
28	1.313	1.701	2.048	2.467	2.763
29	1.311	1.699	2.045	2.462	2.756
$\infty$	1.282	1.645	1.960	2.326	2.576

From "Table of Percentage Points of the t-distribution," computed by Maxine Merrington, *Biometrika*, Vol. 32 (1941), p. 300. Reproduced by permission of the Biometrika Trustees.

(五書式)

國立中山大學八十七學年度碩博士班招生考試試題

科目：行政法(公共事務管理研究所內組) 頁第1頁

一、對於高普考不及格之評分，如有不服，可否請求行政救濟？試申其理。(60%)

二、何謂法律優越？何謂法律保留？試舉例說明之。(40%)

(橫書式)

國立中山大學八十七學年度碩博士班招生考試試題

科目：都市與環境規劃概論 (丁組公事所) 共 / 頁 第 / 頁

壹、在當前政治民主、社會多元、資訊發達、社區主義蓬勃、第三部門興起，而相對地，政府公權力不彰，企業及民眾普遍缺乏關心的大環境之下，如何在台灣落實推動「永續發展」工作？(34%)

- 建議提示：
- 1.請包括各公私群體及部門之分工
  - 2.短中長期策略
  - 3.可能遭遇的困難

貳、近年來先進國家之都市規劃都採用都市策略規劃 (Strategic Planning)。請說明何謂都市策略規劃？都市策略規劃之精神內涵為何？其與傳統都市規劃之差異何在？並請詳細闡述都市策略規劃之規劃程序？(33分)

參、在地方競爭的時代，如何提升地方競爭力為一重要課題，身為一個專業規劃人員，請你就一個你熟悉的鄉(鎮、市、區)回答下列問題？

1.如何界定地方的資源？請以「人、文、地、產、景」分別敘述之。(15%)

2.試從「城鄉景觀風貌改造」觀點，以地方的資源為基，請你擬定一個地方(上述你熟悉的鄉、鎮、市、區)實質環境改善的策略。(18%)

(橫書式)

國立中山大學八十七學年度碩博士班招生考試試題

科目：公共事務個案分析 (公專所戊組)

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壹、請以台灣自民國 76 年政治民主化以來的經驗為範圍，舉例討論如何提升公信力？參考內容包括行政部門、民意部門、傳播媒體、第三部門、專家學者間之互動分工以及倫理、民主、科學如何兼顧並重。(34%)

貳、政府目前在大力推動社區總體營造，由文建會及地方政府主其事，請問目前社區參與的情況如何？目前的方式有何優缺點？(20%)

參、拜耳在台中港區設廠一案，引起各方人士廣泛討論，為一不容忽視之公共事務個案。請簡答下列問題：

1. 假如你是鄰近台中港區之地方鄉鎮長，請你就經濟發展與環境保護兩個層面來探討此開發案，你是支持或反對拜耳設廠？請說明你的理由。(20%)

2. 在地方時代來臨之際，假如你治理的鄉鎮或者你居住的社區沒有所謂的大投資、大建設，你如何替地方謀求出路？(13%)