

國立臺灣科技大學
九十四學年度碩士班招生考試試題

系所組別：財務金融研究所碩士班

科 目：統計學

總分 100 分

1. (25 分) A company produces 3 kinds of fruit baskets that are sold at the same price. The fruit baskets are displayed in 6 supermarkets in the local area. The sales are recorded in the following table.

Supermarket	Baskets		
	A	B	C
1	40	46	53
2	44	50	50
3	42	43	52
4	44	49	54
5	45	45	38
6	42	51	49

Do a 5 percent test to determine whether the 3 different baskets are equally popular. Assume the data do not follow a normal distribution. (There is no table available, please write in more detail.)

2. (25 分) Suppose you have a stock market indicator made up of 5 common stocks selling at the prices per share indicated in the following table.

Stock	Price per Share
A	\$105.00
B	42.75
C	49.50
D	32.75
E	23.50

- (1) Find the market average.
- (2) Suppose stock A split 2 for 1, stock B split 2 for 1 and stock D split 3 for 1. Find the new denominator for your average.
- (3) After the splits, the prices settled to the values shown in the following table. Find the indicator's new value.

Stock	Price per Share
A	\$61.00
B	30.35
C	53.25
D	16.75
E	23.25



國立臺灣科技大學
九十四學年度碩士班招生考試試題

系所組別：財務金融研究所碩士班

科 目：統計學

3. A credit card company conducted a research on the relationship between the payment preference and demographic backgrounds. Use a Type I error level of .05 and carry 2 decimal points in all your calculations to answer the following questions: (Total 25 points)

	Old Male	Young Male	Old Female	Young Female
Prefer Credit Card	10	80	55	85
Prefer Cash	90	20	45	15

- Do the four demographic groups share the same payment preference? (5 points)
- Do the male group and the female group share the same payment preference? (5 points)
- Do the young male group and the young female group share the same payment preference? (5 points)
- Do the old male group and the old female group share the same payment preference? (5 points)
- What conclusion can you draw based on the above four analyses? (5 points)

4. A Marketing manger wants to evaluate the effects of three types of Internet advertisement (a_1 , a_2 , a_3) on sales volume for two different products (b_1 , b_2) (Total 25 points)

- Write down a research design can be applied to this problem (4 points)
- Write down a statistical analysis can be used to analyze the problem based on your research design (3 points)
- Based on the design you specified in (a), what hypotheses in terms of effects can be tested? (9 points)
- Write down the H_0 and H_1 for each of the hypothesis you specified in (b). (9 points)



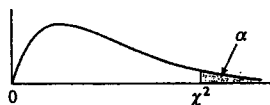
191

國立臺灣科技大學
九十四學年度碩士班招生考試試題

系所組別：財務金融研究所碩士班

科 目：統計學

Table
Upper Percentage Points of the χ^2 Distribution



df	.995	.990	.975	.950	.900	.750	.500	.250	.100	.050	.025	.010	.005
1	0.00	0.00	0.00	0.00	0.02	0.10	0.45	1.32	2.71	3.84	5.02	6.63	7.88
2	0.01	0.02	0.05	0.10	0.21	0.58	1.39	2.77	4.61	5.99	7.38	9.21	10.60
3	0.07	0.11	0.22	0.35	0.58	1.21	2.37	4.11	6.25	7.82	9.35	11.35	12.84
4	0.21	0.30	0.48	0.71	1.06	1.92	3.36	5.39	7.78	9.49	11.14	13.28	14.86
5	0.41	0.55	0.83	1.15	1.61	2.67	4.35	6.63	9.24	11.07	12.83	15.09	16.75
6	0.68	0.87	1.24	1.64	2.20	3.45	5.35	7.84	10.64	12.59	14.45	16.81	18.55
7	0.99	1.24	1.69	2.17	2.83	4.25	6.35	9.04	12.02	14.07	16.01	18.48	20.28
8	1.34	1.65	2.18	2.73	3.49	5.07	7.34	10.22	13.36	15.51	17.54	20.09	21.96
9	1.73	2.09	2.70	3.33	4.17	5.90	8.34	11.39	14.68	16.92	19.02	21.66	23.59
10	2.15	2.56	3.25	3.94	4.87	6.74	9.34	12.55	15.99	18.31	20.48	23.21	25.19
11	2.60	3.05	3.82	4.57	5.58	7.58	10.34	13.70	17.28	19.68	21.92	24.72	26.75
12	3.07	3.57	4.40	5.23	6.30	8.44	11.34	14.85	18.55	21.03	23.34	26.21	28.30
13	3.56	4.11	5.01	5.89	7.04	9.30	12.34	15.98	19.81	22.36	24.74	27.69	29.82
14	4.07	4.66	5.63	6.57	7.79	10.17	13.34	17.12	21.06	23.69	26.12	29.14	31.31
15	4.60	5.23	6.26	7.26	8.55	11.04	14.34	18.25	22.31	25.00	27.49	30.58	32.80
16	5.14	5.81	6.91	7.96	9.31	11.91	15.34	19.37	23.54	26.30	28.85	32.00	34.27
17	5.70	6.41	7.56	8.67	10.09	12.79	16.34	20.49	24.77	27.59	30.19	33.41	35.72
18	6.26	7.01	8.23	9.39	10.86	13.68	17.34	21.60	25.99	28.87	31.53	34.81	37.15
19	6.84	7.63	8.91	10.12	11.65	14.56	18.34	22.72	27.20	30.14	32.85	36.19	38.58
20	7.43	8.26	9.59	10.85	12.44	15.45	19.34	23.83	28.41	31.41	34.17	37.56	40.00
21	8.03	8.90	10.28	11.59	13.24	16.34	20.34	24.93	29.62	32.67	35.48	38.93	41.40
22	8.64	9.54	10.98	12.34	14.04	17.24	21.34	26.04	30.81	33.93	36.78	40.29	42.80
23	9.26	10.19	11.69	13.09	14.85	18.14	22.34	27.14	32.01	35.17	38.08	41.64	44.18
24	9.88	10.86	12.40	13.85	15.66	19.04	23.34	28.24	33.20	36.42	39.37	42.98	45.56
25	10.52	11.52	13.12	14.61	16.47	19.94	24.34	29.34	34.38	37.65	40.65	44.32	46.93
26	11.16	12.20	13.84	15.38	17.29	20.84	25.34	30.43	35.56	38.89	41.92	45.64	48.29
27	11.80	12.88	14.57	16.15	18.11	21.75	26.34	31.53	36.74	40.11	43.20	46.96	49.64
28	12.46	13.56	15.31	16.93	18.94	22.66	27.34	32.62	37.92	41.34	44.46	48.28	50.99
29	13.12	14.26	16.05	17.71	19.77	23.57	28.34	33.71	39.09	42.56	45.72	49.59	52.34
30	13.78	14.95	16.79	18.49	20.60	24.48	29.34	34.80	40.26	43.77	46.98	50.89	53.67
40	20.67	22.14	24.42	26.51	29.06	33.67	39.34	45.61	51.80	55.75	59.34	63.71	66.80
50	27.96	29.68	32.35	34.76	37.69	42.95	49.34	56.33	63.16	67.50	71.42	76.17	79.52
60	35.50	37.46	40.47	43.19	46.46	52.30	59.34	66.98	74.39	79.08	83.30	88.40	91.98
70	43.25	45.42	48.75	51.74	55.33	61.70	69.34	77.57	85.52	90.53	95.03	100.44	104.24
80	51.14	53.52	57.15	60.39	64.28	71.15	79.34	88.13	96.57	101.88	106.63	112.34	116.35
90	59.17	61.74	65.64	69.13	73.29	80.63	89.33	98.65	107.56	113.14	118.14	124.13	128.32
100	67.30	70.05	74.22	77.93	82.36	90.14	99.33	109.14	118.49	124.34	129.56	135.82	140.19

(Source: The entries in this table were computed by the author.)

