

所別：人力資源管理研究所碩士班 不分組 科目：經濟學與統計學

### 經濟學

1. 什麼是完全競爭？它具有那些特性？在我們真實的社會中有完全競爭的情況嗎？請舉例說明。如沒有，那為什麼我們要談完全競爭？（15%）
2. 完全競爭市場的短期均衡與長期均衡的特性有何差別？請以圖表及文字說明。（15%）
3. 為什麼汽車保險的投保金額有上限的規定，而壽險的保額通常沒有上限的規定？為什麼汽車發生車禍需要修理時，修理商的第一句話是問你「有沒有保險？」這些事件與「道德危險」有無直接關係？何種關係？（20%）

注意：背面有試題

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統計學

1. As input into his pricing policy, the owner of an appliance store is interested in the relationship between the price at which an item is sold (regular or sale price) and the customer's decision on whether or not to purchase an extended warranty. The owner has constructed the accompanying table of probabilities, based on a study of 2000 sales invoices. Suppose that one sales invoice is selected at random, with the relevant events being defined as follows: (12%)
- Item is purchased at regular price.
  - Item is purchased at sale price.
  - Extended warranty is purchased.
  - Extended warranty is not purchased.

	Extended Warranty	
	Purchased	Not Purchased
Regular Price	.21	.57
Sale Price	.14	.08

Express each of the following probabilities in words and find its value:

- $P(C)$  (3%)
  - $P(D|B)$  (3%)
  - $P(C|A)$  (3%)
  - $P(B|D)$  (3%)
2. A management behavior analyst has been studying the relationship between male/female reporting structure in the workplace and the level of employees' job satisfaction. The results of a recent survey are shown in the following table. Using  $\alpha = .10$  conduct a test to determine whether the level of job satisfaction depends on the boss/employee gender relationship and explain what do you find from the findings. (8%)

Level of Satisfaction	Boss/Employee				Total
	Female/Male	Female/Female	Male/Male	Male/Female	
Satisfied	20	25	50	75	170
Neutral	40	50	50	40	180
Dissatisfied	30	45	10	15	100
Total	90	120	110	130	450

3. The store manager of ABC Furniture Inc. has been reviewing quarterly advertising expenditures. TV spot ads in particular caught her eye, because they were the major expenditure item. In order to maximize cost-effectiveness, she would like to get a better idea of the relationship between the TV spot advertising she sponsors and the number of people who visits her store because of them.

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To this end, she has compiled the data contained in the following table. (20%)

Number of TV Ads	x	7	5	1	8	10	2	6	7	8	9	5	7	8	2	6	5
Number of People	y	42	32	10	40	61	8	35	39	48	51	30	45	41	7	37	33

$$\begin{aligned} \Sigma x &= 96 & \Sigma y &= 559 & \Sigma xy &= 3930 \\ \Sigma x^2 &= 676 & \Sigma y^2 &= 23037 \end{aligned}$$

- Find the estimated regression line that expresses the number of people coming to the store as a function of the number of TV ads run. What does the value of the coefficient of TV ads tell you? (10%)
  - Is there enough evidence to allow the manager to conclude that to increase the number of TV ads may help to increase the number of people who visits the store? (Use  $\alpha=0.05$ ) (5%)
  - Please indicate and explain what proportion of the variability in the number of people coming into the store is explained by the variability in the number of TV ads. (5%)
4. Four judges were asked to test the sensory quality of four different frozen orange juices. After the complex scoring system was explained to them, the judges assigned the points shown in the accompanying table. (10%)

Judge	Brand			
	A	B	C	D
1	81	79	55	36
2	63	69	65	45
3	57	59	58	62
4	77	69	73	58

- Do these data provide enough evidence at the 10% significance level to indicate that there are differences in sensory quality among the orange juice brands? (5%)
- What do these results indicate about the consistency of the four judges' opinions? (5%)

注意：背面有試題

