

實踐大學 101 學年度研究所碩士班入學招生考試試題
所 別：企業管理學系碩士班(企業管理組) 80 分鐘
科 目：統計學 共 3 頁，第 1 頁

→ 備註：請在答案卷上作答，於本試題紙上作答者一律不予計分。

可使用 27 鍵以下的基本型電子計算機

- (20%) 1. Indicate the measurement scale (nominal, ordinal, interval, or ratio) being used for each of the following variables:
- (1) Number of books you read last year.
 - (2) The month of birthdays for each student in a class.
 - (3) The EPS (earnings per share) of firms.
 - (4) The methods of payment (cash, check, credit card).
 - (5) The rank of faculty in a university (professor, associate professor, assistant professor, instructor).
- (20%) 2. Suppose that the manager of the Customer Service Division of ASOS company was interested in determined where customers who had purchased a T-Pad tablet PC over the past 12 months were satisfied with their products. Using the warranty cards submitted after the purchase, the manger was planning to survey 1,068 of these customers.
- (1) Describe both the population and sample of interest to the manger.
 - (2) Develop a first draft of the questionnaire by writing a series of three categorical questions and three numerical questions that you feel would be appropriate for this survey.
- (20%) 3. 林舒豪是豪邁咖啡館的老闆，正考慮將咖啡館搬到另一條路上，已知目前咖啡館平均每天有 200 位顧客。他想利用假設檢定的統計方法，作為搬遷咖啡館的決策依據。請問林舒豪決策時所面臨的型一及型二錯誤 (type I and type II error)分別為何？那一種錯誤的成本較高？

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(20%) 4. Many Psychologists believe that knowledge of a college student's relationships with his or her parents can be useful in predicting the student's future interpersonal relationships both on the job and in private life. Researchers at the Shih Chien University compared the attitudes of male and female students toward their father. Using a 5-point scale, they asked each group to complete the following statement: My relationship with my father can best be described as (1)Awful! (2)Poor, (3)Average, (4)Good, or (5)Great! The SPSS output of the data was given as follows.

組別統計量

	Gender	個數	平均數	標準差	平均數的標準誤
Father Rating	Female	90	3.68	1.356	.143
	Male	44	3.91	.960	.145

獨立樣本檢定

		變異數相等的 Levene 檢定		平均數相等的 t 檢定				
		F檢定	顯著性	t	自由度	顯著性 (雙尾)	平均差異	標準誤差異
Father Rating	假設變異數相等	12.935	.000	-1.013	①	.126	-.231	.228
	不假設變異數相等			②	114.95	.245	-.231	.203

(1) Fill the blanks ① and ② of the above table. (4%+6%)

(2) Do male college students tend to have better relationships, on average, with their fathers than female students? Conduct the appropriate hypothesis test using $\alpha=0.1$. (10%)

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- (20%) 5. 實踐汽車公司想要調查男女性別對迷你、小型、中型車的喜好是否有所不同。因此，在上個星期針對台北市的成年人，隨機抽樣 150 人進行電話調查，訪問他們偏好的車型，經 SPSS 分析後，得到下列的輸出報表：

GENDER * CARTYPE 交叉表

			CARTYPE			總和
			Middle	Mini	Small	
GENDER	Female	個數	15	35	20	70
		GENDER內的 %	21.4%	50.0%	28.6%	100.0%
		CARTYPE內的 %	33.3%	58.3%	44.4%	46.7%
	Male	個數	30	25	25	80
		GENDER內的 %	37.5%	31.3%	31.3%	100.0%
		CARTYPE內的 %	66.7%	41.7%	55.6%	53.3%
總和	個數	45	60	45	150	
	GENDER內的 %	30.0%	40.0%	30.0%	100.0%	
	CARTYPE內的 %	100.0%	100.0%	100.0%	100.0%	

卡方檢定

	數值	自由度	漸近顯著性(雙尾)
Pearson卡方	6.585 ^a	2	.037
概似比	6.661	2	.036
有效觀察值的個數	150		

a. 0格(.0%)的預期個數少於5。最小的預期個數為21.00。

- (1) 列聯表中第二列第一行的期望值 E_{21} 為何？(請列出計算過程) (5%)
 (2) 你有何結論？(請列出詳細的檢定過程及具有管理意涵的結論) (15%)

