國立中央大學102學年度碩士班考試入學試題卷

所別：企業管理學系碩士班 一般甲組(一般生)　科目：統計學　共 / 頁 第 / 頁
企業管理學系碩士班 一般乙組(一般生)
企業管理學系碩士班 一般丁組(一般生)
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本科考試禁用計算器

＊請在試卷答案卷（卡）內作答

參考用

請用藍黑色筆作答

1　隨機變數 $y_1 = 0.7x_1 + 0.3x_2$ ， $y_2 = 0.2x_1 + 0.8x_2$ ， $\sum_x = \begin{bmatrix} 1 & -0.5 \\ -0.5 & 1 \end{bmatrix}$

計算 $\sum_y$ ， y1 與 y2 相關係數 (20%)

若 Y1, Y2, …, Yn 是來自下列機率密度函數之隨機樣本

$$f(y) = (\theta+1)y^{\theta} \quad 0<y<1, \quad \theta > -1$$
$$0 \qquad \text{Otherwise}$$

找出 θ 之最大概似估計式。 (20%)

2　說明下面各檢定統計量用途與檢定步驟 (20%)

(a) Park Test　(b) Goldfeld & Quandt Test
(c) Durbin-Watson Test　(d) Scheffe′ Test

3　說明 Tobit Regression 與 Logistic Regression 模式並比較其用途。 (15%)

4. Psychologists have found that people are generally reluctant to transmit bad news to their peers. This phenomenon has been named the "MUM effect." To investigate the cause of the MUM effect, undergraduates at a university participated in an experiment. Each subject was asked to administer an IQ test to another student and then provide the test taker with his or her percentile score. (Unknown to the subject, the test taker was a bogus student who was working with the researchers.) The experimenters manipulated two factors, subject visibility and success of test taker, each at two levels. Subject visibility was either visible or not visible to the test taker. Success of test taker was either top 20% or bottom 20%. Twenty-five subjects were randomly assigned to each of the experimental conditions. Then the time (in seconds) between the end of the test and the delivery of the percentile score from the subject to the test taker was measured. (This variable is called the latency to feedback.)
說明此實驗設計內容並列出研究假說與變異數分析。(15%)

5. 自強號從中壢到台北停靠桃園、板橋兩站，若各站間定速行車時間(不含各站停靠時間)分別為{10,15,7}分鐘，假設春節期間兩站停靠所需時間(分鐘)均為常態分配 N(3,1)，計算 95%百分位數之總乘車時間，並判斷總乘車時間超過 50 分鐘之可能性。 (10%)