

# 國立臺北科技大學 101 學年度碩士班招生考試

系所組別：4221 經營管理系碩士班乙組

## 第二節 統計學 試題 (選考)

第一頁 共一頁

### 注意事項：

1. 本試題共六題，配分共 100 分。
2. 請標明大題、子題編號作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

1. (25%) There is a sample with data value of 4750, 4590, 4410, 4580, 4640, 4830, 4455, 4620, 4650, 4550, 4580, and 5025. Please compute: (Please show all your work including formulas and calculation, if not, no points will be given.)

- (a) (5%) The Mean
- (b) (5%) The Median
- (c) (5%) The Mode
- (d) (5%) The Sample variance
- (e) (5%) The Standard deviation

2. (5%) What is the multiple regression analysis? Please explain in detail.

3. (5%) Please explain the meaning of the dependent variable.

4. (5%) Please explain the meaning of the independent variable.

5. (50%) The table below shows the results of multiple regression analysis for the dependent variable Y with three independent variables,  $X_1$ ,  $X_2$ , and  $X_3$ . There are 32 observations. Please answer the following questions:

Variable	Coefficient	Std. Error
Constant	-2.091119	0.976723
$X_1$	0.281414	0.166225
$X_2$	-0.485015	0.247226
$X_3$	0.217298	0.182518
R-squared	0.189339	

(a) (5%) Please use the results shown in the table to write the regression model.

(b) (15%) Please calculate the t-statistic for  $X_1$ ,  $X_2$ , and  $X_3$ . (Please show all your work including formulas and calculation, if not, no points will be given.)

(c) (5%) Please calculate the Adjusted R-squared. (Please show all your work including formulas and calculation, if not, no points will be given.)

(d) (15%) Please interpret the meaning of the coefficients of  $X_1$ ,  $X_2$ , and  $X_3$  in detail.

(e) (10%) At the 1% level of significance, test whether there is a significant relationship between the dependent variable and the independent variables. Please explain in detail.

6. (10%) What is the correlation coefficient? Please explain in detail.