

Question 1

- a) What is the difference between qualitative and quantitative research? Include mention of possible differences in Conceptual, purpose, questions addressed, data collection methods, sampling techniques, and data analysis. [10]
- b) Define the following terms and give one example for each;
- (i) Categorical variable; [5]
 - (ii) Dependent Variable; [5]
 - (iii) Independent variable; [5]
 - (iv) Intervening variables; [5]
 - (v) Continuous variables; and [5]
 - (vi) Discrete variables. [5]

Question 2

An environment management agency has the number of environmental crimes reported each week and the following are the number of SMS messages placed weekly for a period of 12 weeks.

Table 2.17 Environmental Crimes Reported and SMS Messages Placed

| | | | | | | | | | | | | |
|---------------|----|----|----|----|----|----|----|----|----|----|----|----|
| SMS | 4 | 4 | 3 | 2 | 5 | 2 | 4 | 3 | 5 | 5 | 3 | 4 |
| Crimes | 26 | 28 | 24 | 18 | 35 | 24 | 36 | 25 | 31 | 37 | 30 | 32 |

Tables 2.18 show the statistical software outputs:

Table 2.18 ANOVA

| Source of Variation | Degrees of Freedom | Sum of Squares | Mean Squares | F-ratio |
|----------------------------|---------------------------|-----------------------|---------------------|----------------|
| Regression | 1 | 241.72 | 241.72 | 20.49 |
| Error | 10 | 117.95 | 11.79 | |
| Total | 11 | 359.67 | | |

- a) Calculate the coefficient of determination. [5]
- b) Test the significance of the regression model. [25]

Question 3

- a) Find the values of the z-statistics for the 90% confidence level. [5]
- b) Find the values of the z-statistics that give an area of 5% in both tails. [5]
- c) Find the t-statistic that gives an area of 1% in the right tail for a sample size of 23. [5]
- d) Determine the t-statistics for an area of 5% in both tails and 19 degrees of freedom. [5]
- e) Find the value of the F-statistic that gives an area of 5% in the right tail with 3 degrees of freedom for numerator and 24 degrees of freedom for denominator. [5]
- f) Find the value of the chi-square statistic that gives an area of 1% in the right tail with 10 degrees of freedom [5]

Question 4

A random sample of 40 MSc Development Studies students at Women's University in Africa is taken and 55% are in favor of the proposed weekend learning timetable. With 99% confidence, what proportion of all MSc Development Studies students is in favor of the new timetable? [30]

Question 5

Samples from three Early Childhood Development (ECD) B classes were given an identical task. The scores are as follows:

Table 5.1 ECD B classes performance

| Class B1 | Class B2 | Class B3 |
|-----------------|-----------------|-----------------|
| 5 | 10 | 8 |
| 4 | 2 | 8 |
| 6 | 1 | 7 |
| 10 | 5 | 6 |
| 4 | 3 | 8 |
| 7 | 8 | 8 |
| 3 | 9 | 10 |
| 9 | 2 | 1 |

Test the hypothesis that the performance of the three ECD B classes is different. [30]

END