



THE OPEN UNIVERSITY OF SRI LANKA

B.I./ D. I. Degree Programme

ADU3318 – Statistics for Agriculture I

No Book Test (NBT) 2017/2018

Date: - 05.01.2019

Time: 2.30pm – 3.30pm

Instructions

- This examination is of **One hour** duration.
- There are two parts to the question paper. Part *A* consists of 10 multiple choice questions. Each correct answer is given 5 marks. Part *B* consists of a structured essay question. Fifty (50) marks are allocated for this question distributed as indicated.
- Answer **All** questions. At the end of the examination, handover Part *A* with correct answers underlined along with the answers to Part *B*.

Part A

Underline the most suitable answer from the choices given.

1. The sample mean and median of a data set randomly selected from a population are 44.2 and 54.3 respectively. What is the most probable shape of the distribution of the data?
 - a) symmetric
 - b) negatively skewed
 - c) positively skewed
 - d) bimodal
2. A data set has an extremely large value. The most appropriate statement is
 - a) The sample mean will be greater than the 5% trimmed mean.
 - b) The sample mean will be greater than the median.
 - c) The sample mean will be greater than the mode.
 - d) The statements (a), (b) and (c) are all true.

3. Which of the following is a measure of dispersion of a data set?
 - a) First quartile
 - b) Coefficient of skewness
 - c) Coefficient of variation
 - d) None of (a), (b) and (c).

4. Which of the following is suitable as a graph for summarizing nominal data?
 - a) Frequency polygon
 - b) Histogram
 - c) Cumulative frequency plot
 - d) None of (a), (b) and (c).

5. Which of the following is a suitable measure for summarizing nominal data?
 - a) Mean
 - b) Mode
 - c) Median
 - d) None of (a), (b) and (c).

6. The heights of 10 students (in inches) are 52,52,53,53,54,55,55,55,56,56. Relative cumulative frequency corresponding to 54 is:
 - a) 0.5
 - b) 0.4
 - c) 26.4
 - d) 54.5

7. Which of the following graph is not suitable to examine whether the data collected on a ratio scale variable are symmetrically distributed or not.
 - a) Box plot
 - b) Frequency polygon
 - c) Bar chart
 - d) All of (a), (b) and (c) are suitable.

Part B

1. The following summary table was constructed from the dried weights (mg), measured to the nearest decimal, of 150 plants.

Dried weight (mg)	Number of plants
2.0 – 3.4	5
3.5 – 4.9	12
5.0 – 6.4	58
6.5 – 7.9	45
8.0 – 9.4	25
9.5 – 10.9	5

- i) Calculate the sample mean of the data and explain what it measures in relation to this study. (20 marks)
- ii) Calculate the range of the data. (5 marks)
- iii) Calculate the percentage of plants with dried weights less than 5.0mg. (5 marks)
- iv) Construct a suitable graph to graphically illustrate the information presented in the table and clearly state all the findings from the graph. (20 marks)

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8. Which of the following graph is not suitable for examining the presence of extreme observations in a data set?
- Box plot
 - Frequency polygon
 - Bar chart
 - Stem and leaf plot
9. The sample mean and standard deviation of heights of 60 medicinal plants (at the age of 24 months) were 23.1cm and 3.2cm respectively. The sample mean and standard deviation of dried weights of the same plants were 4.3mg and 0.8mg respectively. A measure suitable for examining whether plants differ more with respect to the height or with respect to the dried weight is
- Sample mean
 - Standard deviation
 - Coefficient of variation
 - None of the measures described in (a), (b) and (c).
10. The average monthly income of 200 families was Rs. 45000/-. The standard deviation of incomes was Rs. 450/-. Each family was given a subsidiary of Rs.2000/-. Assume that there were no other changes to the monthly incomes. After the subsidiary, the average monthly income and the standard deviation of incomes will be respectively:
- (Rs. 47000/-, Rs. 2450/-)
 - (Rs, 45000/-, Rs. 2450/-)
 - (Rs. 47000/-, Rs.450/-)
 - (Rs. 45000/-, Rs. 450/-)