



University of Ruhuna- Faculty of Technology
Bachelor of Biosystems Technology Honours Degree
Level 2 (Semester II) Examination, November / December - 2025
Academic year 2023/2024

Course Unit: BST 2262 – Statistical Applications of Biosystems Technology (Theory)
Duration: 1 hour and 30 minutes

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The question paper consists of **two (2)** Sections.
Answer only **four (4)** questions from **Section 1**
Answer only **one (1)** question from **Section 2**

Section 1

Question 01

Answer only **four (04)** questions.

(Time: 60 minutes)

- i. Explain the concept of skewed distributions and illustrate the major types of skewness commonly observed in data.
- ii. Illustrate **four** probability sampling methods using sketches, and briefly explain the importance of accurate sampling in data collection.
- iii. List six ethical aspects that should be followed in data collection, analysis, and reporting, and briefly evaluate how failure to follow these principles can affect the credibility of research findings.
- iv. Explain the consequences of poor data analysis practices on interpreting research results, including at least one example.
- v. Using suitable examples, identify and describe the types of correlation relationships that may exist between variables.
- vi. Illustrate **three** essential graphical representations used in descriptive statistics and highlighting their importance.

Section 2

Answer only **one (01)** question

(Time: 30 minutes)

Question 02

Two groups of students completed separate math tests. The scores are shown below:

Group A: 8, 9, 10, 8, 9, 10, 9, 8, 9, 10

Group B: 4, 6, 7, 8, 10, 11, 13, 9, 5, 12

Mean, variance and standard deviation are given below.

Statistic	Data Set A	Data Set B
Mean	9.0	8.5
Variance	0.67	8.94
Standard Deviation	0.82	2.99

- Compare the results to determine which group's performance was more consistent and interpret what the differences imply about the variability of student performance.
- What occasions do the estimation mean is not useful? What are the better measures for each occasion?

Question 03

Design a simple experiment to test whether playing background music during study sessions improves student test performance, identifying the independent and dependent variables, control group, data collection method, and explaining how your design ensures reliable and valid results.

.....End of the paper.....