

BOWEN UNIVERSITY, IWO
COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCE
MICROBIOLOGY / PURE AND APPLIED BIOLOGY PROGRAMME
2022/2023 FIRST SEMESTER EXAMINATION

BLY 407: BASIC R STAT

Instructions: Answer any three questions

Time Allowed: 1:30 hrs.

1. Define the following terms giving appropriate examples:
- (i) Descriptive statistics (5 Marks) (iv) Confidence interval (5 Marks)
(ii) Inferential statistics (5 Marks) (v) Hypothesis testing (5 Marks)
(iii) Sampling error (5 Marks)
2. (a) Describe in full the procedure for importing data from Microsoft Excel into R. (15 Marks)
(b) Describe how to call or read the imported data in R Studio. (10 Marks)
3. Given Table 1: Mycelia growth of fungi treated with plant extract.

| Treatment | <i>A. niger</i> (mm) | <i>A. flavus</i> (mm) |
|-----------|-------------------------|--------------------------|
| Control | 65 | 32.5 |
| Control | 61 | 22.5 |
| 1 ml oil | 25 | 11.4 |
| 1 ml oil | 27 | 13.2 |
| 2 ml oil | 14 | 3 |
| 2 ml oil | 2.6 | 0 |
| 4 ml oil | 0 | 0 |
| 4 ml oil | 0 | 0 |

Write a command to compute a bar plot showing the error bars with data in Table 1 above. (25 Marks)

4. Table 2: The mycelia growth of fungi (mm) for seven days

| Day | <i>A. niger</i> | <i>R. stolonifer</i> | <i>Fusarium sp</i> |
|-----|-----------------|----------------------|--------------------|
| 3 | 10.2 | 12.1 | 5.1 |
| 5 | 26.1 | 25 | 11.5 |
| 7 | 47 | 34.7 | 12.5 |

- a. Write a command to compute the mean of the data in Table 2 above (10 Marks)
b. Write a command to make a boxplot for the data in Table 2 above (15 Marks)