



KOGI STATE UNIVERSITY, KABBA

FACULTY OF SCIENCE AND COMPUTING
DEPARTMENT OF MATHEMATICAL SCIENCES
COURSE TITLE: STATISTICAL COMPUTING

COURSE CODE: STA122 UNIT: 3

Session: 2024/2025

Semester: SECOND

Date: 08/08/25

Time allowed: 2Hours.

INSTRUCTION: Answer Question ONE (1) Compulsory and ANY THREE (3) of the remaining questions.

- Q1 (a) Define the following terms as they relate to statistical computing:
- (i) Data transformation
 - (ii) Computation
 - (iii) Variable
 - (iv) Spreadsheet
 - (v) Analysis ToolPak
- (b) Describe five practical applications of statistical computing in science and technology.
- (c) Using Microsoft Excel, explain the steps to:
- (i) Install the Analysis ToolPak
 - (ii) Use it to perform descriptive statistics on a dataset of test scores [56, 67, 78, 84, 91, 45, 73]
- Q2 (a) Differentiate between the following:
- (i) Hardware and Software
 - (ii) Input and Output devices
 - (iii) System software and Application software
- (b) List and explain any three types of computers based on size or functionality.
- Q3 (a) Identify any four statistical topics covered in STA 111 or STA 121 that can be computed using Excel.
- (b) Describe how Excel can be used to:
- (i) Calculate the mean and standard deviation
 - (ii) Create a frequency table
 - (iii) Plot a bar chart from data
- (c) What are the benefits of using Excel over a manual calculator in statistical computation?
- Q4 (a) Explain the basic structure of a computer system, highlighting the roles of:
- (i) Central Processing Unit (CPU)
 - (ii) Memory Unit
 - (iii) Storage Devices
 - (iv) Output Devices
- (b) Give two examples each of scientific, business, and educational applications of computers in statistical computing.
- Q5 You are given a dataset representing the daily number of cyber intrusion attempts recorded by a server: [4, 7, 5, 9, 6, 8, 10]
- (a) Use Excel formulas to compute:
- (i) Mean
 - (ii) Median
 - (iii) Variance
 - (iv) Standard deviation
- (b) Describe how the Analysis ToolPak can help automate this computation.
- (c) Interpret the standard deviation result in context.
- Q6 (a) What do you understand by “organization of computations” in statistical computing?
- (b) Outline the sequential steps involved in organizing a data analysis project using a computer system—from data entry to result presentation.
- (c) Briefly explain what is meant by “exploring data” and give two methods used in Excel for this.