

MACHAKOS UNIVERSITY  
SCHOOL OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY  
SST 200-COMPUTER INTERACTIVE STATISTICS

**SUPPLEMENTARY EXAMS**

**Instructions**

**Answer question one and any other two questions**

**QUESTION ONE (30 MARKS)**

- a) Explain R programming language. (4 marks)
- b) Explain three alternatives to R programming. (3 marks)
- c) Explain two different ways to run R scripts. (4 marks)
- d) Explain three uses of R programming. (3 marks)
- e) Explain three features of R programming. (3 marks)
- f) Using examples explain four data types in R programming. (4 marks)
- g) Explain rule for writing identifiers in R programming. (4 marks)
- h) Differentiate between variable, constants and vectors. (3 marks)
- i) Explain three ways on how you can import Data in R programming. [2 marks]

**QUESTION TWO (20 MARKS)**

- a) Discuss four Types of Operators in R programming. (8 marks)
- b) Explain the role of flow control statements and explain using examples the following three flow control statements. (8 marks)
  - i. if statement
  - ii. if...else statement
  - iii. switch statement
- c) Explain a function in R programming language write its syntax and explain its four components. (4 marks)

**QUESTION THREE (20 MARKS)**

- a) What is a list? Explain how one can create a list in R programming language. (5 marks)
- b) Write a script in R program to count the number of even numbers in a vector. (5 marks)
- c) Write a program in R to find sum, mean and product of Vector in R Programming. (5 marks)
- d) Write a R program to create a Data Frames which contain details of 5 employees and display summary of the data. (5 marks)

#### QUESTION FOUR (20 MARKS)

- a) Write R program to create a simple bar plot of five subjects marks. (6 marks)
- b) Write R program to create a list of elements using vectors, matrices and a functions. Print the content of the list. (6 marks)
- c) Write R program to create three vectors a,b,c with 3 integers. Combine the three vectors to become a 3×3 matrix where each column represents a vector. Print the content of the matrix. (8 marks)

#### QUESTION FIVE (20 MARKS)

- a) Describe three data structures in R that is used to perform statistical analyses and create graphs. [6 marks]
- b) Describe how to merge two dataframes in R programming language. [5 marks]
- c) Using a code describe how to implement cbind, rbind and merge funcion in R programming. [9 marks]