

Reg. No. :

Name :

First Semester M.Sc. Degree Examination, January 2026

Statistics

ST 515 – INTRODUCTION TO R AND PYTHON

(2021 Admission Onwards)

Time : 3 Hours

Max. Marks : 60

PART – A

Answer any **four** questions. Each question carries **3** marks.

1. How can you create a 2 by 2 matrix with one missing value in the R programming language?
2. In the R programming language, explain how to define a dataframe and provide an example with three variables.
3. Provide an R code to generate a histogram using the numbers 1 to 12.
4. In the R programming language, illustrate how to create a violin plot.
5. Enumerate the purposes and benefits of using an Integrated Development Environment (IDE) for Python.
6. Explain the concept of slicing in Python and present an example.
7. Develop a Python function to calculate the mean of the square root of the observations.
8. How can you create a bar plot in Python where each bar has a distinct colour?

(4 × 3 = 12 Marks)

PART – B

Answer any **three** questions. Each question carries **8** marks.

9. Explore the concept of constants in R and elaborate on numeric vectors, character vectors, and symbols.
10. Provide an in-depth explanation of conditional statements in R, including if, else, and if else conditions.
11. Elaborate on data reshaping techniques in R, focusing on cbind, rbind, joins, and basic string operations. Provide examples for better understanding.



12. Explore graphical parameters in R and discuss basic graphic functions. Provide examples for better comprehension.
13. Demonstrate the drawing capabilities in R, including mathematical functions, logarithmic functions, trigonometric functions and polynomial functions.
14. Explain the process of plotting time series data in R and discuss advanced graphical techniques such as lattice graphics, stem and leaf plots, and Q-Q plots.

(3 × 8 = 24 Marks)

PART – C

Answer any **three** questions. Each question carries **8** marks.

15. Explain the step-by-step process of installing Python on different operating systems, emphasizing the importance of version selection and configuring environment variables.
16. Explore the different ways of handling input and output in Python. Discuss functions and methods for reading from and writing to files, as well as standard input and output operations.
17. Categorize and explain different data types in Python (integers, strings, Booleans).
18. Discuss the usage of break, continue, and pass statements in Python. Provide examples illustrating each control flow structure.
19. Define anonymous functions and discuss their applications in Python.
20. Introduce basic plot functions in the Matplotlib library. Discuss Line Plot, Bar Plot and Scatter Plot. Provide examples illustrating how to create each type of plot.

(3 × 8 = 24 Marks)



(Pages : 2)

U – 6597

Reg. No. :

Name :

First Semester M.Sc. Degree Examination, February 2025

Statistics

ST 515 — INTRODUCTION TO R AND PYTHON

(2021 Admission Onwards)

Time : 3 Hours

Max. Marks : 60

PART – A

(Answer **any four** questions, each carries **3** marks)

1. Write the syntax of Plot().
2. Discuss any three math functions in R.
3. What do you mean by data frame?
4. Define indexing by integer vector.
5. Explain slicing.
6. Write Pythonic code to find the factorial of a number.
7. Define immutable objects.
8. What do you mean by global variable?

(4 × 3 = 12 Marks)

P.T.O



PART – B

(Answer **any three** questions, each carries **8** marks)

9. How do you install a package in R?
10. Explain different approaches in R to connect with Excel.
11. Discuss the importance of data manipulation and data cleaning.
12. What do you mean by QQ Plot? Explain its importance.
13. Give the R syntax for logarithmic, trigonometric and polynomial functions with numerical illustration.
14. Discuss in detail how R can be used for plotting time series.

(3 × 8 = 24 Marks)

PART – C

(Answer **any three** questions, each carries **8** marks)

15. Discuss why Python is called as dynamic and strongly typed language?
16. How do I install and run Python? How do you check Python is installed or not?
17. Explain the Identifiers, Keywords, Statements, Expressions, and Variables in Python programming language with examples.
18. Discuss the relation between tuples, lists and dictionaries in detail.
19. Describe Arithmetic Operators, Assignment Operators, Comparison Operators, Logical Operators and Bitwise Operators in detail with examples
20. How will you create an object in python?

(3 × 8 = 24 Marks)



Reg. No. :

Name :

First Semester M.Sc. Degree Examination, April 2024

Statistics

ST 515 : INTRODUCTION TO R AND PYTHON

(2021 Admission Onwards)

Time : 3 Hours

Max. Marks : 60

PART – A

Answer **any four** questions, each carries **3** mark.

1. What is Rmarkdown?
2. What do you mean by indexing by integer vector?
3. What do you mean by data frame?
4. Write syntax for "if else" in R?
5. Give examples of "while" and "for loop" in R.
6. Write Pythonic code to find the factorial of a number.
7. Define mutable objects.
8. What do you mean by local variable?

(4 × 3 = 12 Marks)



PART – B

Answer any **three** questions, each carries **8** marks.

9. How will you draw QQ plot using R? Demonstrate it with an example?
10. Distinguish between assignment operator and logical operators.
11. Discuss the R graphics for “stem and leaf plots” with an example.
12. Briefly explain R graphics.
13. How do you install a package in R?
14. Explain in detail about math functions in R with an example each.

(3 × 8 = 24 Marks)

PART – C

Answer any **three** questions, each carries **8** marks.

15. Explain the different string formats available in Python with examples.
16. Describe Arithmetic Operators, Assignment Operators, Comparison Operators, Logical Operators and Bitwise Operators in detail with examples.
17. How do I install and run Python? How do you check Python is installed or not?
18. Describe briefly on how we construct basic charts and graphs in R.
19. What is Python function? Give an example? Why do we create functions in Python?
20. Why is data cleansing important for data visualization?

(3 × 8 = 24 Marks)



(Pages : 3)

R – 6200

Reg. No. :

Name :

First Semester M.Sc. Degree Examination, May 2023

Statistics

ST 515 : INTRODUCTION TO R AND PYTHON

(2021 Admission Onwards)

Time : 3 Hours

Max. Marks : 60

PART – A

Answer any **four** questions. Each question carries **3** marks.

1. Write the difference between built in functions and user defined functions in R.
2. Explain the use of loops. Write an example.
3. How do we plot a logarithmic function in R?
4. For the following data plot stem and leaf plot: 1,1,2,2,2,2,2,3,3,4,5.
5. Distinguish between Mutable and Immutable Objects.
6. What you mean by IDE? Write some examples of IDE in python
7. What are Local Variables in python?
8. How do we plot Pie Chart in python?

(4 × 3 = 12 Marks)

P.T.O.

PART – B

Answer any **three** questions. Each question carries **8** marks.

9. Write an R function to print mean, median and standard deviation.
10. What are the use of data frames in R. Explain using an example?
11. Explain about iterative statements in R.
12. How to add or change the R Plot's legend.
13. (a) How to Save a Plot as an Image on Disc.
(b) How to Plot Two R Plots Next to Each Other.
14. Plot subdivided bar plot in R with proper title, for the following data

Gender	Rural	Urban
Employed	11	13
Un Employed	21	23

(3 × 8 = 24 Marks)

PART – C

Answer any **three** questions. Each question carries **8** marks.

15. What is the difference between list and tuples in Python? Write their the key features of Python?
16. (a) What are python modules?
(b) What are local variables and global variables in Python?
17. Explain any four Data Structures in python.

18. Write the syntax for the following in a single plot
- (a) Draw a histogram
 - (b) Give any heading
 - (c) Write an label for X axis
 - (d) Write an label for Y axis
19. Explain the use of matplotlib in python.
20. (a) What are the built-in data types in Python?
- (b) How do we import an excel file in to python.

(3 × 8 = 24 Marks)

(Pages : 3)

N – 5390

Reg. No. :

Name :

First Semester M.Sc. Degree Examination, May 2022

Statistics

ST 515 – INTRODUCTION TO R AND PYTHON

(2021 Admission)

Time : 3 Hours

Max. Marks : 60

PART – A

Answer **any four** questions. **Each** question carries **3** marks.

1. What are the uses of user define functions in R.
2. What are the uses of arg() function?
3. How do we plot a violin plot in R?
4. Write syntax for insert heading and x-label in a plot.
5. Explain the operation of any five arithmetic operators in python.
6. Distinguish between Logical Operators, Bitwise Operators.
7. What are Global Variables in python?
8. How do we plot Box Plot in python?

(4 × 3 = 12 Marks)

P.T.O.

PART – B

Answer **any three** questions. Each question carries **8** marks.

9. Write an R code to print first n fibonacci series.
10. What are the uses of list in R? Explain using an example.
11. Explain the different string operations available in R.
12. (a) How to draw an Empty R Plot?
(b) How to set the legends the R Plots?
13. (a) How to adjust the Size of Points in an R Plot?
(b) How to fit a smooth curve to your R Data?
14. Plot a multiple bar plot in R with proper title, for the following data

Gender	Male	Female
Mathematics	10	22
Statistics	22	13

(3 × 8 = 24 Marks)

PART – C

Answer **any three** questions. Each question carries **8** marks.

15. Explain any four data types are supported in python?
16. (a) What type of language is python?
(b) How is Python an interpreted language?
17. Explain any four Control Flow in python.

18. Write the syntax for the following in a single plot
- (a) Draw a boxplot
 - (b) Give any heading
 - (c) Write an label for X axis
 - (d) Write an label for Y axis
19. Write the syntax for plotting two histograms in single chart.
20. How do we define a function in python?

(3 × 8 = 24 Marks)
