Indian Maritime University

(A Central University, Govt of India)

Sep/Oct'25 SE

Programme Name: B Tech (ME)

Semester: II

Subject Code: UG11T5202

Subject Name: INTRODUCTION TO COMPUTERS & PYTHON PROGRAMMING

Date: 09.09.2025	Max Marks: 70
Duration: 03 Hrs	Pass Marks: 35

General Instructions

(i) All Sections (A, B & C) are to be attempted.
(ii) Options, if any, are specified in respective section.

Section A

Ten MCQs/Fill in the Blanks of 01 Mark each – Choose the correct answer as applicable.

1. Write the output of the following code: ***round(c(0.234, -1.4532), 2)***
   a) 0.234, -1.45
   b) 0.23, -1.45
   c) 0.2, -1.4
   d) 0.23, -0.45
2. Output of the code ***class(c(2,3))***
   a) matrix
   b) array
   c) numeric
   d) integer
3. What is the output of the following code snippet, print(type(3.14))?
   a) str
   b) int
   c) float
   d) list
4. Which of the following is a mutable data type in Python?
   a) str
   b) list
   c) tuple

d) int

5. What is the correct syntax to create a function in Python?
   a) function myFunction():
   b) def myFunction():
   c) create myFunction():
   d) define myFunction():
6. What is the mean of the following data set: 2, 4, 6, 8, 10?
   a) 5
   b) 6
   c) 7
   d) 8
7. In a normal distribution, what percentage of data falls within one standard deviation of the mean?
   a) 68%
   b) 95%
   c) 99%
   d) 100%
8. Which measure of central tendency is most affected by extreme values?
   a) Mean
   b) Median
   c) Mode
   d) Range
9. What are the various types of learning algorithms?
   a) Supervised Learning
   b) Unsupervised Learning
   c)Reinforcement Learning
   d) All of the above
10. Once a package is installed in your R Software, it cannot be uninstalled.
   a) False
   b) True
   c) Cannot remove all package
   d) None of the above

Section B

Five Questions of 02 Marks each

11. Give the output of the following code

```
x <- c(0.2, c(0.1, -1.21), c(0.2, 1.3, 1))
```

   (i) print(x[c(2, 4)])
   (ii) print(x[-5])

12. Explain the difference between a list and a tuple in Python.

13. Write a Python function to calculate the factorial of a number.

14. Define standard deviation and explain its significance in statistics.

15. List the data type in R Programming.

Section C

Seven Questions of 10 Marks each of which any 05 questions to be answered.

16. a) With refers to computer programming language, what is the Interpreted languages and Compiled Languages? Give example for each. [5]

b) Define a vector in R. Describe any three methods of creating vector in R with example. [5]

17. Write a Python program to read a text file and count the number of lines, words, and characters in the file. [10]

18. a) Given a list of numbers, write a Python function to return the second largest number in the list. [5]

b) What is matplotlib? Explain 'figure' and 'subplot' with respect to matplotlib. [5]

19. a) Differentiate between population and sample in the context of statistics. [5]

b) What do you understand by univariate statistics? Explain any one techniques of data visualization in univariate statistics. [5]

20. Explain the concept of linear regression and its significance in statistics. Additionally, discuss the interpretation of the regression coefficients and how they can be used to make predictions. Provide an example with a hypothetical data set to illustrate your explanation. [10]

21. a) Write the name of the different types of if statements available in R. Also, write the general syntax of each one of them and explain how they are executed. [5]

b) Write a R program to find $\sqrt{x}$ [5]

22. a) Mention the differences between NumPy and Pandas. [4]

b) Explain any 2 of the following: [6]

(I) DataFrame in Pandas
(II) Array Indexing in NumPy
(III) Broadcasting in Numpy