

Tribhuvan University
Institute of Sciences and Technology
SCHOOL OF MATHEMATICAL SCIENCES
First Assessment 2079

Subject: Programming with Python

Course No: MDS 551

Level: MDS /I Year /II Semester

Full Marks: 45

Pass Marks: 22.5

Time: 2 hrs

Candidates are required to give their answer in their own words as far as practicable.

Group A [5 × 3 = 15]

1. What is problem analysis? Why do we need it?
2. Define variable. Explain rules for defining python variables with example. What is global variable?
3. Write a program to test whether a number is even or odd.
4. Write a program to count number of vowels in a string.
5. Explain recursive function with example.

Group B [5 × 6 = 30]

- ✓ 6. Explain selection statements in python with suitable example.

OR

What is looping statement? Compare for loop with while loop.

- ✓ 7. Explain list data type with example. How list is different from tuple? What is list comprehension?

OR

Explain dictionary data type with example. What is nested dictionary?

- ✓ 8. Why do we need function in programming? Explain different ways of passing arguments in functions.
9. How do you read and write CSV files in python? Explain.
10. Explain the use of break and continue statements in programming. What is nested control statement?

Tribhuvan University
Institute of Sciences and Technology
SCHOOL OF MATHEMATICAL SCIENCES
Second Assessment 2079

Subject: Programming with Python

Course No: MDS 551

Level: MDS /I Year /II Semester

Full Marks: 45

Pass Marks: 22.5

Time: 2 hrs

Candidates are required to give their answer in their own words as far as practicable.

Group A [5 × 3 = 15]

1. Why do we need problem analysis before writing programs?
2. What is list type in python? Compare list with tuple?
3. Write a program in Python to test whether a number entered is prime or not.
4. what is recursive function? Write a recursive program to find factorial of a number.
5. Why function is important in programming? How do you create and use functions in Python?

Group B [5 × 6 = 30]

6. Explain each type of if statement in Python with example.

OR

How can you read and write files in Python? Explain reading and writing files with example.

7. Explain array broadcasting in NumPy with example. How do you search and sort arrays using NumPy?

OR

What is dictionary data type? Explain its uses with example. What is nested dictionary?

8. Why looping is important in programming? Explain both for and while loop with example.
9. Why pandas is important in Python programming? What is data frame? How do you handle missing data in data frame? Explain.
10. How can you draw multiple plots in one figure using pyplot ? Explain with example, how do you generate bar graphs and histograms using pyplot?

Tribhuvan University
Institute of Science and Technology
2079



Master Level / I Year / IIInd Semester/ Science

Data Science (MDS 551)

(Programming with Python)

Candidates are required to give their answers in their own words as far as practicable.

Full Marks: 45

Pass Marks: 22.5

Time: 2 hours

Attempt All Questions

Group A

(5×3=15)

1. Why problem analysis is important? What is algorithm? (1.5+1.5)
2. Define variable and data type. What are different numeric types in python? (1+2)
3. Explain the use of continue statement with example. (3)
4. How do you create an array using numpy? Write a program to find sum of two matrices stored in numpy arrays. (1+2)
5. How can you draw multiple plots in one figure using pyplot? Explain with suitable example. (3)

Group B

(5×6=30)

6. Explain tuple data type with example. Compare tuple with list. Explain different ways of slicing lists with example. (1+2+3)

OR

Explain dictionary data type with example. How can you access dictionary items? Explain nested dictionary with example. (2+2+2)

- ✓ 7. Why do we need selection statements in programming? Explain all selection statements used in python. (2+4)

OR

Define looping statement. Why do we need looping statements in programming? Write a program to count number of odd integers in a list. (1+2+3)

8. What is function? Why do we need functions in programming? Explain different ways of passing arguments to functions with example. (1+1+4)
9. How can we read and write files in Python? Write a program that reads data from a text file, counts number of vowels in it, and writes number of vowels in a separate text file. (2+4)
10. Compare pandas data frame with series. How can you read and write CSV file using pandas? How do you merge and join data frames in pandas? Explain with suitable example. (2+2+2)