

Roll No.

Total Pages : 03

CMDQ/D-23

6525

PROGRAMMING WITH PYTHON

ST-303 & ST-304, Opt. (iii)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

1. (a) What is the purpose of random forest ?
(b) How is missing data handled in Pandas ?
(c) What is meant by broadcasting in NumPy ?
(d) What is meant by polymorphism ?
(e) How is list different from tuple ?
(f) What is a void function in python ? **6×2.5=15**

Unit I

2. (a) Describe the various types of control statements in Python using suitable examples. **10**
(b) Explain any *five* functions in math module. **5**

3. (a) Write a program in python to find the sum of series
 $1/1! + 4/2! + 27/3! + \dots$ 7.5
- (b) What is recursion ? Explain by writing a suitable program based on recursion. 7.5

Unit II

4. (a) How can you open, close, read and write into a file in python ? Explain using suitable examples. 7.5
- (b) What is an exception ? How can you handle exceptions in python ? Explain using suitable examples. 7.5
5. (a) What are the various set operations that can be performed on sets in python ? Explain using suitable examples. 7.5
- (b) Explain various methods of dictionaries using suitable examples. 7.5

Unit III

6. How the following features of OOP are implemented in python : 15
- (i) Creating class and objects
 - (ii) Inheritance
 - (iii) Using constructors
 - (iv) Public and private data members
 - (v) Built-in function for class attributes.

7. (a) Explain various mathematical and statistical function in NumPy using suitable examples. 7.5
- (b) How can you perform the following in NumPy
- (i) Indexing and slicing
 - (ii) Broadcasting
 - (iii) Iterating over arrays. 7.5

Unit IV

8. (a) How can you draw three dimensional plots in matplotlib ? How these plots are different from two dimensional plots ? Explain using suitable examples. 7.5
- (b) What are the various operations that can be performed in pandas for data analysis ? Explain. 7.5
9. What is logistic regression ? How can you implement Logistic regression for data analysis using Scikit learn ? Explain in detail using suitable examples. 15