

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