

B.Sc. First Year (Data Science) NEP Semester-I
BSCDS011 - Data Structure and Algorithm Using Python

P. Pages : 2

Time : Three Hours



GUG/S/25/15255

Max. Marks : 80

1. a) Explain types of variable and types of methods. 8
b) What do you mean by “Object oriented programming” (OOP’s)? 8

OR

- c) Explain classes and objects with an example. 8
d) What is inheritance? Explain its type. 8
2. a) Explain the terms – 8
i) Set ii) Tuple
iii) List iv) Dictionary
b) Explain data structure with its types in detail. 8

OR

- c) What is python specific data structure explain in details. 8
d) Explain the terms – 8
i) String ii) Slicing
3. a) Explain all operations of array with example in detail. 8
b) Explain sorting in detail with its types. 8

OR

- c) What is array and explain its types in brief. 8
d) Explain linear search and binary search in detail. Differentiate between linear search and binary search. 8
4. a) Explain all applications of queue in detail. 8
b) Explain Stack and Queue in brief. 8

OR

- c) What are the types of Linked List explain in detail. 8
- d) Explain the Priority Queue in detail. 8
- 5. Write **any two** of following questions.
- a) Explain directed and undirected graph in brief. 8
- b) Explain the terms in detail. 8
 - i) Breadth First Search
 - ii) Depth First Search
- c) In AVL Tree, Described the following – 8
 - i) Insertion
 - ii) Deletion
- d) Describe tree structure and its properties. 8
- e) Explain tree and its terminologies in detail. 8
