

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

P. Pages : 2

Time : Three Hours



**GUG/W/23/15255**

Max. Marks : 80

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1. a) What is program? Described the term problem solving with an example. 8  
b) Explain break and continue structure logic with a python program. 8

**OR**

- c) What is Data types? 8  
d) Described operators. Explain with an example Logical operators. 8
2. a) Differentiate between Built in function and user defined function. 8  
b) Explain classes and objects with an example. 8

**OR**

- c) What do you mean by “Object oriented programming” (OOP’s)? Explain in details regarding OOP’s types. 8  
d) Explain the terms 8  
i) Global variable  
ii) Local variable
3. a) Explain Data structure with it’s types. 8  
b) Described 8  
i) Double Linked list  
ii) Circular linked list

**OR**

- c) What is “Priority Queue”, Explain with best suitable example. 8  
d) Differentiate the term “postfix” and “prefix” with suitable example. 8

4. a) Described Tree structure with its properties. **8**
- b) Explain **8**
- i) Hashing Technique
- ii) Hashing function

**OR**

- c) What do you mean by “Tree Traversal” explain in details. **8**
- d) In AVL Tree, Described the followings- **8**
- i) Insertion
- ii) Deletion
5. Write **any two**.
- i) Describe selection sort algorithm. **8**
- ii) Explain “Greedy Algorithm” **8**
- iii) What is “Dynamic Programming”, explain with an example. **8**
- iv) Short note on. **8**
- i) Linear search algorithm
- ii) Binary search algorithm
- v) Described “Merge sort” in details. **8**

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