

Roll No. ....

**97670**

**BCA 3rd Semester (New)  
Examination – November, 2017**

**DATA STRUCTURE-I**

**Paper : BCA-202**

***Time : Three Hours ]***

***[ Maximum Marks : 80***

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** Attempt *five* questions in all. Question Number 1 will be *compulsory*. In addition to compulsory question, student will have to attempt *four* more questions selecting *one* question from each Unit. All questions carry equal marks.

1. Explain the following :
  - (a) Time-space tradeoff
  - (b) Data type vs. data structure
  - (c) Sparse arrays
  - (d) Graph theory

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- (e) Storing strings
  - (f) Threaded lists
  - (g) Uses of Deques
  - (h) Uses of trees in data structure
- (b) Explain header link list and circular linked list with example.

**UNIT - III**

6. (a) What is stack ? Explain the applications of stack in detail.
- (b) Explain the concept of priority queues in detail with suitable example.
7. (a) Explain the different operations on stacks in detail through example.
- (b) What is queues ? Also explain the applications of queues in detail.

**UNIT - IV**

8. What is graph ? Explain Sequential and linked representation of graphs in detail.
9. (a) Define Tree. What do you mean by Traversing binary trees ? Explain in detail.
- (b) Explain the concept of Traversal algorithms using stacks in detail.

**UNIT - I**

2. (a) What is Data Structure ? Explain the categories of Data structures in detail .
- (b) Explain the applications of data structures in detail.
3. What is String ? What are different string operations ? Also Explain the Pattern matching algorithms in detail.

**UNIT - II**

4. (a) What is Linked list ? What are the advantages and disadvantages of representing a group of items as an array versus a linear linked list ?
- (b) Discuss the advantages and disadvantages of linked list over the array. Also explain the usefulness of an Array.
5. (a) What is an Array ? Differentiate between one-dimensional and two-dimensional arrays with example.