

7. What is queue ? What are the operations on queue ? How to implement queue as linked list ? Explain.

**Unit-IV**

8. What is binary tree ? Write the algorithms to traverse the tree in pre-order, post-order and in-order.

9. What is graph ? How to represent graph ? Explain with an example.

Roll No. ....

**97670**

**B.C.A. 3rd Semester (New)  
Examination - November, 2016**

**Data Structure-I**

**Paper-BCA-202**

**Time : 3 hours**

**Max. 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 the examination.

**Note :** Attempt **Five** questions in all by selecting **one** question from each unit. Q. 1 is **compulsory**. All questions carry equal marks.

1. (a) What is an algorithm ?  
(b) What is Big-O Notation ?

(c) What is garbage collection ?

(d) What is parallel array ?

(e) What is Deque ?

(f) What is recursion ?

(g) What is the difference between graph and tree.

(h) What do you mean by degree of vertex ?

#### Unit-I

2. Define data structure. Differentiate between primitive data structure and non-primitive data structure. Also describe various operations performed on data structure.

3. (a) What is string ? How to store string ? Describe various operations on string.

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(b) What do you understand by time and space complexity of an algorithm? Explain.

#### Unit-II

4. What is a two dimensional array? Describe the formula for calculating the address of any element of a two dimensional array.

Also discuss Sparse array.

5. What do you understand by linked list? What are its merits and demerits over array? Write a program in C to insert and delete a nod in a singly linked list.

#### Unit-III

6. What do you mean by Stack? Describe its applications. Also write code in C for PUSH and POP operation on a stack.

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[ Turn Over