

- Roll No.
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.

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**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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