

Roll No. ....

**97670**

**B.C.A. 3rd Semester (New)  
Examination–November, 2014**

**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 :** Question No. 1 is **compulsory**. Attempt **four** more questions selecting **One** questions from each unit.

1. Answer the following questions briefly :

- (a) Discuss two applications of graph theory.
- (b) List two major advantages of sparse arrays.
- (c) Explain Polish notations.
- (d) Define priority queues.

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{ Turn Over

- (e) Explain uses of recursion
- (f) Define Complexity of an algorithm
- (g) List categories of Data Structures
- (h) Explain uses of an array. 8×2=16

### UNIT - I

- 2. (a) What is string ? How is it useful and used ? Discuss string operations with examples. 10
- (b) Discuss uses of Big-O notation with examples. 6
- 3. Explain the following briefly with suitable examples :
  - (i) Applications of Data Structures 8
  - (ii) Pattern matching algorithms 8

### UNIT - II

- 4. (a) What is threaded list ? How is it useful and used ? Explain with examples. 8

(b) Discuss applications of linked lists with examples. 8

5. Describe the following with examples :

(i) Garbage collection and its advantages 8

(ii) Circular linked lists and their applications 8

### UNIT - III

6. (a) What is Stack ? What operations are applied on it ? Explain its linked representation with examples. 8

(b) Discuss applications of queues with examples. 8

7. Explain the following with examples :

(i) Any three applications of Stack 8

(ii) Array representation of circular queue. 8

### UNIT - IV

8. (a) What is binary tree ? How is it used and useful ? Discuss its applications with examples. 8

(b) Explain how binary trees are represented in memory with an example. 8

9. Explain the following briefly with examples :

(i) Applications of graph theory 8

(ii) Linked representation of graphs 8