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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.

(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

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