Roll No…… Total Pages: 3

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BCA/D-17

DATA STRUCTURE

Paper: BCA-232

Time: Three Hours Maximum Marks: 80

Note: Attempt five questions in all, selecting one question from each Unit in addition to compulsory Q. No. 1.

Compulsory Question

1. (a) What do you mean by Tree and level and degree of a node? Explain with examples.

   (b) Explain the concept of deque.

   (c) Explain the concept of Garbage Collection.

   (d) What is Time-Space Trade off?

Unit-I

2. (a) What is Data Structure? Explain its various operations and applications.

   (b) Describe Big-O Notation.

3. (a) Explain first pattern matching algorithm using an example.

   (b) Differentiate between the following :
   (i) Linear and non-linear data structure
   (ii) Primitive and non-primitive data structure.

Unit-II

4. (a) Write an algorithm for inserting an element in an array at a particular location K.

   (b) Explain circular link list with a suitable example.

5. (a) What is an array? Explain the operations that are perform on an array with example.

   (b) Write an algorithm for delete a node in linked list.

Unit-III

6. (a) What is Priority Queue? What are its applications? Explain the Multiple queue representation.

   (b) What is Stack? Explain the concept of polish notation.

7. What do you mean by Queue? Write an algorithm to insert and delete an element in the array?

Unit-IV

8. What is Binary Tree? Explain the representation of Binary tree in Memory.

9. (a) Explain the post order Traversal algorithm using the concept of stack.

   (b) Explain the following :
   (i) Directed Graph
   (ii) Weighted Graph.