

CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (Autonomous)
BE (IT) II/IV I Sem (Suppl) Examination May – Jun 2016

Data Structures

Time: 3 Hours**Max Marks: 75**

Note: Answer all questions from **Section-A** at one place in the same order
Answer any **five** questions from **Section-B**

Section - A (25 Marks)

1. What is Linear Recursion? (2)
2. Give ADT for Stack. (2)
3. What is a complete Binary Tree? (2)
4. What is a Splay Tree? (2)
5. What is Hashing? (2)
6. Write an algorithm to reverse the links of a given Linked List. (3)
7. What a recursive function to convert a given decimal number to binary form. (3)
8. Consider a small Binary tree and represent it using Vector –based structure. (3)
9. Give ADT for a Graph. (3)
10. What are the various kinds of Tries? (3)

Section - B (50 Marks)

11. (a) Write a program to insert and delete elements in a Single Linked List. (5)
(b) How do you analyse the algorithms? Explain. (5)
12. Write a program for implementing Deque using a Doubly Linked List. (10)
13. (a) Write a program for creating a binary tree and traversing it in Post order. (5)
(b) Explain the advantage of implementing the Priority Queue with a sequence. (5)
14. (a) Write ADT for a Graph. Write Pseudo code for graph BFS traversal methods. (5)
(b) Write the steps to sort the given list of elements using Quick sort: (5)
310,285,179,652,351,423,861,254,450,520
15. (a) Explain the Linear Probing method in Hashing. (5)
(b) Give the Knuth-Morris-Pratt Algorithm for Pattern Matching. (5)
16. (a) Construct a bottom up Heap with the following numbers: (5)
12,2,16,30,8,28,4,10,20 & 6
(b) Write notes on Multi-way Search trees. (5)
17. (a) Explain Kruskal's algorithm for generating Minimal Spanning Trees using an example weighted graph. (5)
(b) Give C++ program for List implementation using Double Linked List. (5)
