

Code: 13A05301

R13

B.Tech II Year I Semester (R13) Supplementary Examinations June 2015

DATA STRUCTURES
(Computer Science & Engineering)

Time: 3 hours

Max. Marks: 70

PART - A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) What is an Abstract Data Type (ADT)? Explain.
 - (b) Write the postfix and prefix notations for the following expression:
 $A/B * C - D * E + F/G$.
 - (c) What is the advantage of quick sort? Mention its worst case time complexity.
 - (d) List the applications of binary tree.
 - (e) Define graph with an example.
 - (f) What is hashing?
 - (g) Define Min Heap.
 - (h) List the operations of priority queue.
 - (i) What do you mean by optimal binary search trees?
 - (j) Mention the purpose of m-way search trees.

PART - B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

- 2 Write the program for the linked list implementation of stack ADT and explain.
OR
3 Implement circular queue using arrays.

UNIT - II

- 4 Illustrate the working of merge sort with an example. Calculate the time complexity in worst and best cases.
OR
5 With examples, explain the two methods of binary tree implementation.

UNIT - III

- 6 Explain the two graph traversals techniques.
OR
7 With examples, explain the operations on binary search trees.

UNIT - IV

- 8 Explain the following
(i) Leftist trees.
(ii) Fibonacci heaps
OR
9 Explain the various representation of graph with example in detail.

UNIT - V

- 10 What is an AVL tree? Explain various rotations of AVL trees maintaining balance factor while insertion and deletion takes place.
OR
11 Explain insertion and deletion operations in B^+ - trees with suitable examples.
