

B.Tech I Year II Semester (R15) Regular & Supplementary Examinations May 2018

DATA STRUCTURES

(Common CSE & IT)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Define one-dimensional array with suitable example.
 - (b) List the applications of linked lists.
 - (c) Distinguish FIFO and LIFO of a queue.
 - (d) Define PUSH and POP operations in a stack.
 - (e) What is binary search tree?
 - (f) What is the minimum spanning tree?
 - (g) What are the factors to be considered in deciding a sorting algorithm?
 - (h) If you have to sort IGB of data with only 100 MB of available main memory. Which sorting technique will be most appropriate? Explain.
 - (i) Distinguish between linear search Vs binary search.
 - (j) Define the following:
 - (i) Linear probing.
 - (ii) Rehashing.

PART – B

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

UNIT – I

- 2 What are the different types of arrays? Give example of each array type and how are two-dimensional arrays represented in memory.

OR

- 3 Explain a detailed comparison of linked list and array.

UNIT – II

- 4 List the applications of stack? Explain recursion for finding a factorial of a number in brief.

OR

- 5 Write an algorithm to insert and delete a node in doubly linked list.

UNIT – III

- 6 Explain inorder, preorder and postorder traversal operation on binary tree with example.

OR

- 7 Write an algorithm to traverse a graph in depth first search with proper example.

UNIT – IV

- 8 Explain in detail about sorting and different types of sorting techniques using examples.

OR

- 9 Explain the algorithm for merge sort and give a suitable example.

UNIT – V

- 10 What do you mean by searching? Explain sequential and binary searching with suitable example.

OR

- 11 Explain collision – resolution hashing techniques in detail.
