Code: 15A05201

R15

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)
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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 stock.
  (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.

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