Code No: I4001/R16

M. Tech. I Semester Regular Examinations, December-2016
ADVANCED DATA STRUCTURES / ADVANCED DATA STRUCTURES AND ALGORITHM ANALYSIS

Common to Information Technology (40), Computer Science (05), Computer Science & Technology (59) and Computer Science & Engineering (58)

Time: 3 Hours   Max. Marks: 60

Answer any FIVE Questions
All Questions Carry Equal Marks

1.	a	Explain about the implementation of stack operations using linked lists	6M
	b	What is a linked list. Specify the difference between singly, doubly and circular linked lists.	6M
2.	a	How can you perform the selection sort and sort the following elements by using the selection sort technique 70, 30, 20, 50, 60, 10,40	6M
	b	Explain about Breadth First Search Traversal technique with an example.	6M
3.	a	What do you mean by a hash table and a hash function. Explain the following hash functions with an example (i). Division method (ii). Mid square (iii). Digit analysis	6M
	b	What do you mean by collision and how can you handle it by using linear probing.	6M
4.	a	What is a binary search tree (BST) and specify the steps showing the construction of a BST for the following data 10, 08, 15, 12, 13, 07, 09, 17, 20, 18, 04, 05	6M
	b	What is a priority queue ADT and explain the insertion & deletion operations on a priority queue with an example.	6M
5.	a	What do you mean by a balance factor in AVL tree and explain about LL & RR rotations with an example.	6M
	b	What is a B-Tree. Specify its properties and describe the construction of a B-Tree for the following elements 5, 2, 13, 3, 45, 72, 4, 6, 9, 22	6M
6.	a	Create a binary tree from the following in-order and pre-order traversal data In-order traversal data: g,d,h,b,e,i,a,f,j,c. Pre-order traversal data: a,b,d,g,h,e,i,c,f,j.	6M
	b	Explain with an example about the collision handling by using a double hashing technique.	6M
7.	a	What do you mean by height of an AVL tree and explain about double rotations with an example.	6M
	b	What is a binary tree and define the following binary tree's with an example (i). Full binary tree (ii). Complete binary tree (iii) left & right skewed binary tree	6M

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8.   a).Write an algorithm for a binary search technique and explain it with the help of an example.   6M

b).Specify the sequence of steps, that shows the deletion of elements in a sequential order from the following heap   6M

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