Department of Computer Science and Information Technology

Assignment-2

Design and Analysis of Algorithm

Q. No.	Question	CO	Bloom's level
1.	What is Red-Black tree? Write an algorithm to insert a node in an empty red-black tree explain with suitable example.	CO2	L4
2.	Insert the following element in an initially empty RB-Tree. 12, 9, 81, 76, 23, 43, 65, 88, 76, 32, 54. Now Delete 23 and 81.	CO2	L3
3.	Discuss the advantages of using B-Tree. Insert the following Information 86, 23, 91, 4, 67, 18, 32, 54, 46, 96, 45 into an empty B-Tree with degree t = 2 and delete 18, 23 from it.	CO2	L4
4.	Define a B-Tree of order m. Explain the searching operation in a B-Tree.	CO2	L2
5.	Using minimum degree 't' as 3, insert following sequence of integers 10, 25, 20, 35, 30, 55, 40, 45, 50, 55, 60, 75, 70, 65, 80, 85 and 90 in an initially empty B-Tree. Give the number of nodes splitting operations that take place.	CO2	L3
6.	Insert the following keys in a 2-3-4 B Tree: 40, 35, 22, 90, 12, 45, 58, 78, 67, 60 and then delete key 35 and 22 one after other.	CO2	L3
7.	Prove that if n>=1, then for any n-key B-Tree of height h and minimum degree t >=2, h<=log t ((n +1)/2).	CO2	L2