

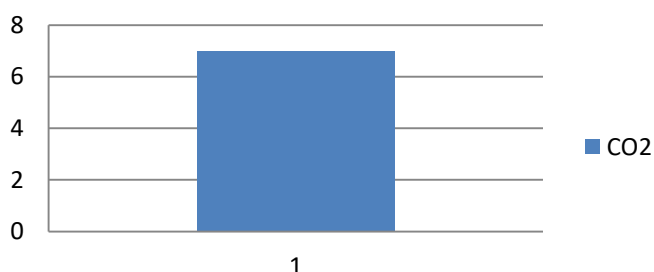
Department of Computer Science and Information Technology

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 $n \geq 1$, then for any n -key B-Tree of height h and minimum degree $t \geq 2$, $h \leq \log_t ((n+1)/2)$. | CO2 | L2 |

Questions distribution CO wise



Questions distribution bloom's level wise

