UID No: ……………

Semester:5th

Subject Title: DAA Subject Code: CST-311

Time: 3 Hour Maximum Marks: 60

**Instructions: Attempt all questions**

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| Q. No | Statement | CO mapping |
| **Section A**  5 x 2 = 10 marks | | |
| 1 | Illustrate recurrence equation. | CO5 |
| 2 | Write limitations of array and linked list. | CO5 |
| 3 | Write algorithm for GCD of 2 numbers. | CO5 |
| 4 | Explain single source shortest path. | CO5 |
| 5 | What is spanning tree. | CO5 |
| **Section B**  4 x 5 = 20 marks | | |
| 6 | Illustrate working of Doubly linked list with suitable example. | CO5 |
| 7 | Find minimum spanning tree using prim and kruskal’s algorithm. | CO5 |
| 8 | Write any algorithm and analyze for its best, worst and average case time complexity. | CO5 |
| 9 | Explain working of KMP algorithm with suitable example. | CO5 |
| **Section C**  3 x 10 = 30 marks | | |
| 10 | Construct Red black tree:  1 2 3 4 5 6 7 8 9 10 | CO5 |
| 11 | What is the relation between P and NP class problems? Is P=NP? If No, then what will happen if P will become equal to NP? | CO5 |
| 12 | Traverse the following graph using Depth First Traversal algorithm. | CO5 |