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 | Write a note on Asymptotic notations. | CO5 |
| 2 | Write applications of any 2 data structures. | CO5 |
| 3 | Differentiate between Breadth first search & Depth First search. | CO5 |
| 4 | Differentiate between N and NP classes. | CO5 |
| 5 | Illustrate applications of graphs. | CO5 |
| **Section B**  4 x 5 = 20 marks | | |
| 6 | How binary search trees are different from balanced binary search trees? Why balanced BSTs are better than BSTs? | CO5 |
| 7 | Discuss about n-queen problem. | CO5 |
| 8 | Write a brief note on Computational Complexity. | CO5 |
| 9 | Find the shortest path from the given source S to all other vertices in the given graph using Dijkstra algorithm.  Start from source S=A. | CO5 |
| **Section C**  3 x 10 = 30 marks | | |
| 10 | Construct BST .  1 2 3 4 5 6 7 8 9 10 | CO5 |
| 11 | Solve the following instance of 0/1 Knapsack problem using Dynamic programming n = 3; (W1, W2, W3) = (3, 5, 7);  (P1, P2, P3) = (3, 7, 12); M = 4. | CO5 |
| 12 | Traverse the following graph using Breadth First Traversal algorithm. | CO5 |