14CS IT404

Hall Ticket Number:

II/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION

April, 2017 **Common for CSE & IT**

Fourth Semester **Design And Analysis of Algorithms**

Time: Three Hours **Maximum:** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1 Answer all questions (1X12=12 Marks)

a) What is a pseudo code?
b) What is the time complexity of Quick Sort?
c) Define optimality principle.
d) What is spanning tree?
e) What is the difference between Greedy method and Dynamic Programming?
f) List various representations of graph.
g) What is e-node?
h) What is a stack?
i) What is articulation point?
j) What is the difference between backtracking and Branch and Bound?
k) What is feasible solution?
l) What is P and NP?

UNIT I

2. What is time complexity and discuss various methods of evaluating time complexity of algorithm in detail by illustrating with examples. 12M

(OR)

3. a) Write short notes on Recursive algorithms. 4M
   b) Explain Merge Sort algorithm to sort the list of elements using Divide and Conquer technique. 8M

UNIT II

4. Write short notes on Minimum Cost Spanning Tree problem. Explain with example Kruskal's algorithm for finding minimum-cost spanning tree. 12M

(OR)

5. a) Write and explain the general method of Greedy method**.** 6M
   b) What is 0/1 Knapsack problem? Define merging and purging rules of O/1 Knapsack problem. 6M

UNIT III

6. a) Explain briefly about Breadth First Search and write the pseudocode for Breadth First Search . 8M
   b) Write short notes on Biconneted components. 4M

(OR)

7. a) Write the control abstraction of backtracking and write backtracking algorithm for n-queen problem. 8M
   b) Define the following i)Problem state ii)Answer state iii)State space tree 4M

UNIT IV

8. a) Explain the following
   i)Control Abstractions for LC – search.
   ii)FIFO branch and Bound 12M
   iii)LC Branch and Bound.

(OR)

9. a) Explain the method of reduction to solve TSP problem using Branch and Bound. 8M
   b) Write short notes on Complexity measures. 4M