Exam.Code:0916
Sub. Code: 6781

1019
B.E. (Computer Science and Engineering)
Fourth Semester
CS-401: Analysis and Design of Algorithms

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Attempt the following:-

a) Which two factors determine the performance of an algorithm.

b) b) Define theta notation.

c) Give the complexity of Strassen Matrix Multiplication.

d) For the array: 12,4.13.18.5,10.7,1 which elements are to right and left of pivot element 12 after the first call to partition in Quicksort.

e) State the greedy strategy for Knapsack problem.

f) State the principle of optimality.

g) Give the time complexity for Multistage graph problem.

h) What do you mean by term NP complete.

i) Give the solution vector for 4 Queen problem

j) What are E nodes? (10x1)

UNIT – I

II. Solve the recurrence equation $T(n)=3T(n/4) + cn^2$. (10)

III. Write a recursive algorithm to find maximum and minimum in an array. (10)

IV. What is the greedy strategy? Differentiate between Prim and Kruskal. (10)

UNIT – II

V. Write an algorithm for All pairs shortest path (10)

VI. Write a recursive backtracking algorithm for sum of subsets problem. (10)

VII. Write a short note on polynomial time verification. (10)

x-x-x