LAST MOMENT TUITIONS

Analysis Of Algorithms

May 18

Computer Engineering (Semester 4)

Total marks: 80
Total time: 3 Hours

INSTRUCTIONS
(1) Question 1 is compulsory.
*(2) Attempt any **three** from the remaining questions.*
(3) Draw neat diagrams wherever necessary.

Q1 Answer the following

a) Write the difference between greedy method and dynamic programming. (5 marks)

b) Explain the general procedure of divide and conquer method. (5 marks)

c) Determine the frequency counts for all statements in the following algorithm segment.

```
i=1;
While(i<=n)
{
X=X+1;
i=i+1;
}
```
(5 marks)

d) What is backtracking Approach? Explain how it is used in Graph coloring (5 marks)

Q2

a) Explain with example how divide and conquer strategy is used in binary search? (10 marks)

b) Solve sum of subsets problem for following

N=6 W={3,5,7,8,9,15} & M=20 Also write the algorithm for it. (10 marks)

Q3

a) Obtain the solution to knapsack problem by Greedy method n=7, m=15 (p1,p2.....p7) = (10,5,15,7,6,18,3), (w1,w2,.....,w7)=(2,3,5,7,1,4,1). (10 marks)

b) Sort the list of the elements 10,5,7,6,1,4,8,3,2,9 using merge sort algorithm and show its computing time is O(n logn). (10 marks)

Q4

a) Explain different string matching algorithms (10 marks)

b) What do you understand by NP complete? Explain Is subset sum problem NP complete? If so explain. (10 marks)

Q5

a) Write a detailed note on Hamiltonian cycles. (10 marks)

b) Explain how backtracking is used for solving n-queens problem. Show the state space tree. (10 marks)

Q6 Write Short Note on (Any 2):

a) Job sequencing with deadlines (10 marks)

b) 8 queens problem. (10 marks)

c) Longest common subsequence. (10 marks)