**Assignment 1**

**Subject: Analysis Of Algorithms**

**Class : SE-A**

1 Explain asymptotic notations with appropriate diagram and examples

2 Explain insertion sort and derive its complexity

3 Explain recurrences and various methods to solve recurrences

4 Explain three cases of master theorem.

5 Find the complexity of given recurrence relation

1. T(n) = 4T(n/2)+n2
2. T(n)=2T(n/2)+n3

6 Explain divide and conquer strategy for merge sort.

7 Explain Quick sort and derive its time complexity.

8 State and explain binary search algorithm and find its time complexity

9 State and solve Job sequencing problem using greedy method

Solve the following instances of job sequencing with deadlines to find the maximum profit : N=7,profits(p1,p2,p3,p4,p5,p6,p7)=(3,5,20,18,1,6,30) and deadlines (d1,d2,d3,d4,d5,d6,d7)=(1,3,4,3,2,1,2).

10 Solve the following fractional knapsack instance to find the maximum profit.

Number of objects N=7, bagsize M=15,Weight W=(2,3,5,7,1,4,1) Profit P= (10,5,15,7,6,18,3)