**Design and Analysis of algorithms**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**SUBJECT CODE: RCS-502 YEAR: III , SEM: V**

**ASSIGNMENT NUMBER##1**

**Note: Write answer in short.**

1. Define algorithm.
2. What is big ‘Oh’ notation?
3. State the best case and worst case analysis for linear search.
4. Define recurrence equation?.
5. What is the average case complexity of linear search algorithm?
6. Define order of growth?
7. Define Time complexity?
8. What is backward substitution method?
9. What are algorithm design techniques?
10. What is meant by correctness of an algorithm?
11. What is time-space tradeoff?
12. Define asymptotic notations?
13. Define space complexity?
14. How to analyze the performance of algorithm?
15. What is meant by worst case time complexity of an algorithm?
16. Give examples of algorithms for quadratic and exponential asymptotic notations?
17. What are the characteristics of an algorithm?
18. What are the criteria used to identify the best algorithm?
19. Solve the following recurrence relation using master theorem:
20. **T(n) = 2T(n/3) + n lg n**
21. **T(n) = 3T(n/5) + lg2 n**
22. **T(n) = T( √ n) + Θ(lg lg n)**
23. **T(n)=8T(n/2) + n**
24. **T(n)=8T(n/2) + n3**
25. **T(n)=3T(n/2) + n**
26. **T(n) = T(n/4) + 1**
27. **T(n)=3T(n/3) + n2**