

## ASSIGEMENT NO 1

1. Find out the time complexity for the following

```
{  
    {j=j*2  
}  
}  
  
For(i =1; i <=n; i++)  
  
j=2;  
  
While (j<=n)
```

2. Explain with algorithm and algorithm. compared to Traditional method example how divide & conquer significantly reduces the time complexity as

3. Compute the product matrix using Strassen's matrix multiplication algorithm and also find out the time complexity. Given

$a_{11}=1; a_{12}=3; a_{21}=5; a_{22}=7$   $b_{11}=8; b_{12}=4; b_{21}=6; b_{22}=2$

4. Create the algorithm and Sort the following using Merge sort

13,4,9,25,36,10,3,14,7,12

5. Find out the total cost (Time Complexity) of building the max heap. Explain with a suitable diagram.

6. Write the algorithm and Sort the following using Quick sort and Merge sort

13,4,9,25,36,10,3,14,7,12

7. What are the differences between Big-Oh ( $O$ ), Omega ( $\Omega$ ) and Theta ( $\Theta$ ) notations?

8. Explain Strassen's multiplication algorithm with example.