**27/10**

1) What do you mean by Data Structures?

2) Define The Goals Of Data Structure?

3) What is the Need of DS

4) List out the areas in which data structures are applied extensively(real time examples)?

5) List different types of data structures.

6) What Does Abstract Data Type Mean?

7)Difference between Primitive and Non Primitive DS

8)Difference between Linear and Non Linear DS

1) What is Recursion?

2) List and Explain types of Recursion

3) Explain the data structures used to perform recursion?

4)List the examples where recursion is used

5)Explain the difference between Recursion and Iteration, justify which to use when,Tail recursion?

Lab Questions :

1. Write a program to print a series of numbers with recursive Java methods

2. Write a program to sum a series of numbers with Java recursion

3. Write a program to calculate a factorial in Java with recursion

4. Write a program to print the Fibonacci series with Java and recursion

5.Write a program to implement a recursive Java palindrome checker

**30/10**

1) What is an algorithm? What is the need for an algorithm?

2) What are the Asymptotic Notations? Mention what are the types of Notation used for Time Complexity?

3) What is Divide and Conquer algorithms?

4) Give some examples of Divide and Conquer algorithm?

5) What Are The Criteria Of Algorithm Analysis?

6)With suitable example explain time complexity and space complexity

7) Explain what is the difference between best case scenario,average case and worst case scenario of an algorithm with suitable example?

8)What is sorting state different techniques of sorting

9)State the difference between sorting techniques

10)Which sorting algorithm will you prefer and why and when?

Programs

1)WAP to accept an array and sort it using Bubble Sort technique

2) WAP to accept an array and sort it using Selection Sort technique

3) WAP to accept an array and sort it using Insertion Sort technique

4) WAP to accept an array and sort it using Merge Sort technique

5)WAP to accept an array and sort it using Quick Sort technique

6) WAP to accept an array and sort it using Heap Sort technique