Co1:

1.Arrange the given order of magnitudes by growth rate: n, n2, n (log n), n(log (log n), n(log2 n), 2/n, 37, n2(log n), n3. Indicate which functions grow at the same rate?

2. Analyze the time complexity of following code? for(int j=0;j<=n\*n;j++) {for(int i=0;i<=n;i++){ .. .. }}

3. Given an array of integers 45, -33, 28, 19, 11, -77, 20, -52. Show that how many comparisons are required to sort these using insertion sort and display the values and number of comparisons after each iteration?

4. Apply insertion sort on following list of numbers. 54, 26, 93, 17, 77, 31, 44, 55, 20

5. Given an array of n integers, find the size of array after removing duplicate elements. Apply merge sort algorithm to sort the array

Example: consider an array of 8 elements, arr=[2,12,3,4,5,5,2,12] Output: 5 and the array elements after removing duplicates are arr=[2,12,3,4,5] Sorted arr=[2,3,4,5,12].

6. Write a program to perform Shell sorting for the following elements. 25, 28, 22, 21, 23, 29,37, 27, 38, 26 .

7. For the given array of 11 elements 2, 3, 10, 12, 15, 22, 21, 13, 18, 21, 17 perform quick sorting. (No need to write algorithm)

8.Explain about merge sort and implement merge sort program.

9. Explain different asymptotic notations with examples and answer the following: I. Algorithm A requires n^2 days and Algorithm B requires n^3 sec to solve a problem. Which algorithm would you prefer for a problem instance with n=10^6. II. Arrange the given order of magnitudes by growth rate: n, n2, n (log n), n(log (log n), n(log2 n), 2/n, 37, n2(log n), n3. Indicate which functions grow at the same rate.

10. Write a c program to implement insertion sort mechanism. Given an array of integers 34, -21, 82, 54, 72, -57, 40, -63. Showthat how many comparisons are required to sort these using insertion sort and display the values and number of comparisons after each iteration?

11. Write a c program for sorting the list of integers using quick sort algorithm. Sort the sequence key 62, 22, 36, 6, 79, 26, 75, 13, 31, 76 in ascending order using quick sort?

Co2:

1. Show the detailed contents of the stack after performing the following operations and write routines to implement push and pop operations. Push(‘J’), Push(‘M’), Pop(), Push(‘S’), Push(‘H’), Pop(), Push(‘R’), Pop().

2. Write an algorithm for postfix expression evaluation and show the contents of the stack for the following postfix expression evaluation 6 2 3 + - 3 8 2 / + \* 2 % 3 +.

3. Give the node structure to create single linked list of integers and write functions to perform the following. i. Create list. ii. Insert node at given position. iii. delete node at the end. iv. Displaying the list.

4. Write an algorithm to convert the infix expression into equivalent post-fix expression and trace that algorithm with the following infix expression (((A+B)\*C/D+E\*F)/G).

5. The following numbers 10,20,50,30,90,60(Top) are present in a stack of size 10. Perform the following operations in sequence. pop(), push(30), push(40), pop(), push(60), pop(), pop(), pop() What is the peek element at last? Draw and explain it.

6. The Professor Lilly is very strict in class room. She never gives the attendance those who are coming last in her class. Write a function to help Professor to delete the last occurrence of a student from the list.

7. Consider the expression ab+c\*de-fg+\*- is a postfix expression with values a=1,b=2,c=3,d=4,e=5,f=6,g=7. Write an algorithm to perform postfix expression evaluation.

8. Implement a queue data structure using Single Linked list.

9. A list of employee data having id number, name and salary are linked in single linked list. Implement the SLL to create the list.

10. In a library, the books are assigned with id number, title of the book and author name. Using Doubled linked list display the books in reverse order.

11.Evaluate postfix expression 7 3 4 + - 2 4 5 / + \* 6 / 7 +. And write a routine code for it.

12.Write a function to search element in a stack.

13.Write a function to find max and min element in sll.

14.Write a function to delete duplicate value in sll.

15.Write a function to print reverse of sll.

16.Write all functions in dll.