S.Y. B.Sc(CS) (Div – A & B)   (Assignment – 1)

Q.A . Answer the following questions in one or two lines :

1.   Define Data Object.
2.   What are the advantages of ADT ?
3.   Define Data Structure.
4.   Define ADT.
5.   Define Data Type.
6.   Write two advantages of Data Structure.
7.   List out the areas in which data structures are applied extensively.
8.   Define the term Bib O notation .
9.   What the characteristics of an algorithm.
10. Define omega notation.
11. Which notation is used to denote lower bound.
12. Define Space Complexity .
13. Define Time Complexity.
14. What is time complexity of merge sort ?
15. Give the best case and worst case complexity of quick sort.
16. Which strategy is used to sort data using merge sort ?
17. Write the formula for calculating address of any element in row major representation of two dimensional array.
18. Calculate the address of element A[2][1] in a character array A[3][4] in the row major representation. (Assume base address = 100)
19. Define "Stable sorting method".
20. Write the formula for calculating address of any element in column major representation of two dimensional array.

Q.B . Answer the following questions :

1) Write short note on time complexity.

2) Write short note on space complexity.

3) Write an algorithm for linear search.

4) Write algorithm for binary search. Also state its worst case time complexity.

5) Sort the following data using insertion sort method : 21   3   5   12   11   17   26.

6) Sort the following data in ascending order using bubble sort method :
        Nashik , Ahmednagar , Pune , Baramati , Loni , Aurandabad

7) Sort the following elements using Bubble Sort. (Write all Passes) :
        92   21   41   71   51   31   81

8) Show all the steps of sorting the following data using quick sort :
        i) 24   30 27 32 11 21 19   ii) 25   15   5   60   10   45

9) Write a 'C' function to implement insertion sort method.

10) Sort the following data using merge sort method :   22   4   6   13   12   18   27.