BCA (Part-I)
Term End Examination, 2019-20
DATA STRUCTURE

Time:- Three Hours]   [Maximum Marks:100

नोट : सभी प्रश्नों के उत्तर दीजिए। प्रश्नों के अंक उनके दाहिनी ओर अंकित है।

Note: Answer all questions. The figures in the right hand margin indicate marks.

1.   Answer the following short answer type questions: 20
      (a)   Why we classify data?
      (b)   What user defined data type consists?
      (c)   While using loop for accessing two dimensional array c_i for row & J for colum to elements at find out the average at elements at each row. Which order at storing array elements will be most suitable?
      (d)   What components make an element at two way link list?
      (e)   When we should use circular link list?
      (f)   How many pointers we need to change first position in circular linked list?
      (g)   When we should use stack instead at quine?
      (h)   Write the makes in order to shift u disk from peg A to B using peg C using the Toner at Hanoi algorithms.
      (i)   How the procedures differ from algorithm?
      (j)   Which notations are used to find out the upper bound at any function?

2.   Do the following in step wise step manner-   16
      (a)   insert the following elements 5,65,55,25,30,2,10 m the given order in an empty array. Using insertion algorithm.
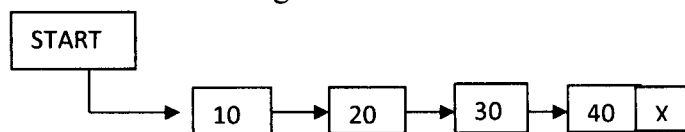   OR
      (b)   Suppose A in a sorted array at 8 elements as follows.

5	10	15	20	25	30	40	45

      Perform two deletion operation to delete element 25 and 10 m the given order.

3.   Consider the following linked list   16

      do the following operation step with the given linked list.
      (a)   Insert the element 15.
             between Node 10 & 20.
      (b)   delete Node 30 after insertion.
                              OR

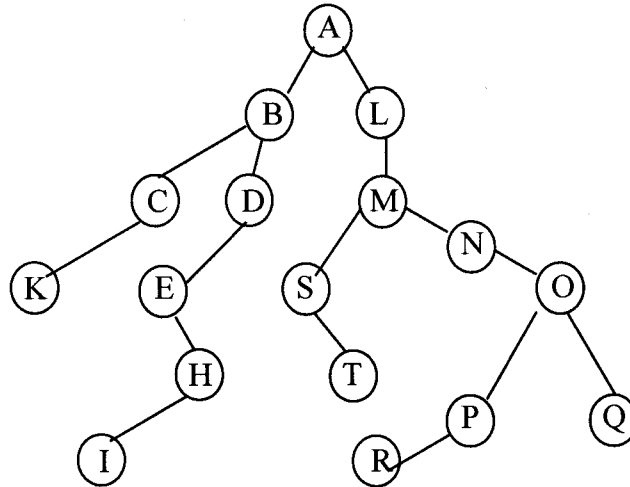What in doubly linked list? Write its type with their use in salving the particular problem.

4.   Concert the following infix expression into postfix expression.   16
     using stack.

$$a + b * c \wedge (d - e) * g - (h * i)$$

OR

Consider the following binary tree and find out the different types at its reversals.

5.   Construct the binary search tree (BST) by inserting the elements   16
     5,15,50,25,40,45,10,2,1,60,44, in given order in the empty BST.

OR

Consider the array at I O elements i.e.

5	25	10	1	50	60	20	30	2	15

Do the seating using quick sort algorithm

6.   What is complexity? Explain the role at complicity in algorithms design.   16

OR

Find out the complexity at linear search and binary search algorithm