Reg. No.

II Semester B.C.A.6. (NEP) Degree Examination, September/October - 2022
DATA STRUCTURE USING C
Paper - I
(Regular)

Time : 2 Hours   **Maximum Marks : 60**

Instructions to Candidates :   *Answer the question as per the instructions given.*

1. Answer any **Six** questions of the following.   **(6×2=12)**

     a. What is Dynamic memory allocation?

     b. What is pointers in 'C'? Give syntax and example.

     c. What is towers of Hanoi? Mention constraints.

     d. Define sequential search? List its advantages.

     e. Convert infix to postfix notation.

         a. A*B+C.

         b. (A+B)*C-D.

     f. What is priority queue mention different types of it.

     g. What is singly linked list? How do you declare it?

     h. What is strictly binary tree? Give example.

2. Answer any **Three** questions of the following.   **(3×4=12)**

     a. What is data structure? Define primitive and non - primitive data structures.

     b. Write a short note on

         i. Malloc

         ii. Calloc

         iii. Realloc.

     c. Write advantages and disadvantages of using pointers.

     d. With example write a simple program in 'C' to access address and value of variables using pointers.

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3. Answer any **Three** questions of the following. (3×4=12)

   a. What is recursion? Write comparison between iterative and recursive function.

   b. Write a 'C' program to generate binomial coefficient using recursive function.

   c. Write an algorithm deleting elements of arrays.

   d. Compare quick sort and selection sort.

4. Answer any **Three** questions of the following. (3×4=12)

   a. Explain Application of stack in function calls.

   b. Explain working of circular queue.

   c. Write an algorithm evaluation of postfix expressions using stack.

   d. What is queue? Write basic concepts.

5. Answer any **Three** questions of the following. (3×4=12)

   a. Explain the types of linked lists.

   b. Define

      i. Node

      ii. Terminal node.

      iii. Non - terminal node.

   c. Write an algorithm to display in - order traversal of a binary tree.

   d. Define :

      i. Heap tree.

      ii. Binary search tree.

      iii. Complete binary tree.