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Reg. No. | | | | | | | | |

II Semester B.C.A. 6. (NEP) Degree Examination, October - 2023

DATA STRUCTURE USING C

Paper - I

(Regular /Repeater)

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

Instructions to Candidates:

Answer the questions as per the instructions given.

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

a) Define pointers Give syntax and example

b) Explain recursion with its types.

c) Differentiate singly and doubly linked list.

d) Explain sequential search with its advantages.

e) Define true and degree of a node.

f) Define stack list some application of stack.

g) Explain postfix expression with example.

h) Define priority queue. Give its types.

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

a) Define data structure. Explain primitive and non-primitive data structure.

b) Convert infix to prefix

$(X \wedge Y) + Z * M - N / (P * Q)$.

c) Write a program to find GCD of two numbers.

d) Explain tower of hanoi problem with example.

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

a) Explain Iterative and Recursive function.

b) Write 'C' program to generate Fibonacci series using recursion.

P.T.O.

c) Explain quick sort with example.

d) Write an algorithm to delete elements in arrays.

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

a) Explain stack operations with example.

b) Explain working of queue.

c) Convert the following expression to postfix notation.

i) (A * (B+C))/(D) - F

ii) (x +y) * (m/n +d)

d) Explain circular queue with example.

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

a) Explain how insertions and deletions performed in linked list.

b) Define the following.

i) Depth

ii) Path

iii) Sibling

c) Define

i) Heap tru.

ii) Doubly linked list

iii) Strict binary tree.

d) Write an algorithm to display post order traversal of a binary tru.