PRESIDENCY COLLEGE
(AUTONOMOUS)
AFFILIATED TO BENGALURU CITY UNIVERSITY, APPROVED BY AICTE, DELHI & RECOGNISED BY THE GOVT. OF KARNATAKA
RE-ACCREDITED BY NAAC WITH 'A+' GRADE

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

REG NO:

END TERM EXAMINATION JUNE 2023
BCA - II SEMESTER
GC204.2C: DATA STRUCTURES

Duration: 2 Hours   **Max Marks: 60**

Instruction: *Answers should be written in **English** only.*

PART-A

Answer **any EIGHT** questions. Each question carries **TWO** marks.   **(8 X 2 = 16)**

1. What is data structure? Give example.
2. What is sparse matrix?
3. Explain array as Abstract Data Type.
4. Write any four operations performed on stack.
5. What is recursion? Write any one property of recursive function.
6. What is Deque? Write its types.
7. What is Divide and Conquer Technique?
8. Write any two properties of Binary tree.
9. What is Degree of vertex? Give an example.
10. Explain Adjacency matrix in graph.

PART-B

Answer **any FOUR** questions. Each question carries **SIX** marks.   **(4 X 6 = 24)**

1. What are Linear and Non-linear data structures? Explain any two types of linear data structure.
2. Explain Asymptotic notations.
3. How to insert and delete elements from Stack? Write its procedure.
4. Explain any two types of Queues with example.
5. Explain any two different types of tree traversal.
6. Explain merge sort procedure with example.

PART-C

Answer **any TWO** questions. **Each** question carries **TEN** marks.   **(2 X 10 = 20)**

1. a) Write an algorithm to delete an element from array.
    b) Explain Best, Worst and Average case performance of linear search algorithm.

2. a) Convert the following infix to postfix expression.   A+(B*C-(D/E^F)*G)*H.
    b) Write a C program to solve towers of Hanoi problem.

3. Explain different types of linked list with suitable examples.

4. a) Write a C program to search an element using binary search.
    b) Write the procedure to sort given elements using Selection sort.

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