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REACH GREATER HEIGHTS

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

21C204.2C

REG NO: | | | | | | | | |

END TERM EXAMINATION MAY 2024
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. Define data structure. Give example.
2. List any two applications of data structure.
3. Write the algorithm to display the elements of an array.
4. Mention any two functions used for dynamic memory allocation.
5. Construct the conditions to check stack full and stack empty.
6. Interpret LIFO and FIFO with respect to data structure.
7. Define node in linked list with memory representation.
8. Recall the names of various types of graphs.
9. What is binary tree?
10. Discuss the following terms with example a) cycle b) degree of vertex.

PART - B

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

1. Explain various types of linear data structures.
2. Write a C program to delete an element in an array at a given position.
3. What is recursion? Write a recursive program to find GCD of two numbers.
4. Develop an algorithm to insert and delete an element from linear queue.

5. Define linked list. Explain the different types of linked list in brief.
6. Design an algorithm to search a number using binary search. Mention its advantages and disadvantages.

PART - C

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

1. a) Develop an algorithm to insert an element at a given position in an array. Explain with example. 5

   b) Design a C Program to find sum of array elements using recursion. 5

2. Convert the given infix expression to postfix using stack. 10
   (a+b/c*d) –f + (e ^ g / h)

3. a) Create binary search tree for the given numbers and perform inorder, preorder and post order traversal.56,38,10,65,72,44,60,90,78 5

   b) Write the depth first search algorithm. 5

4. Construct a C program to sort the numbers using selection sort. Sort the following 37,47,24,42,5,51 elements in ascending order using the same technique. 10

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