1/8/2022

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 JULY/AUGUST 2022
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)**

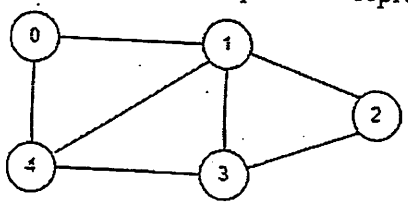
1. Define Data Structure.
2. Define the term a) Space complexity b) Time complexity.
3. What do you mean by non-linear data structure? Give example.
4. What is Stack? List the applications of stack.
5. Define a dequeue.
6. Define Linked list. State the different types of linked list.
7. What is meant by binary tree traversal?
8. Define Circular queue with an example.
9. Define Sorting. Mention the types of sorting.
10. What is meant by binary search?

PART - B

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

1. Define Array and its types with a suitable example.
2. Convert the following infix expression to postfix equivalent using stack (A/(B-C)*D+E).
3. Explain the basic operations performed on Stack with suitable example.
4. Explain types of linked list with example.

5. What is graph? Explain the representation of graph using adjacency matrix.



6. Trace the given elements using bubble sort 15, 16, 6, 8, 5.

PART - C

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

1. a) What are asymptotic notations? Explain in detail.
   b) Sparse Matrices.
2. a) Explain the basic operations performed on queue with algorithm.
   b) Write a short note on tower of hanoi and give an example.
3. Construct binary search tree for the following numbers and perform inorder, preorder and postorder traversals 43, 10, 79, 90, 12, 54, 11, 9, 50.
4. Write a C program to implement selection sort method and consider the elements to trace the output 20, 30, 10, 50, 40.

*****