Progressive Education Society's

Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16, NEP 2020 (Autonomous)

End Semester Examination: MAR / APR 2025

***Total No. of Questions**: 4/18* ***Total No. of Pages**:*

SECOND YEAR (BBA(CA))

BBA24101: Data Structures using C++

(Semester IV)

Program:BBA(Computer Application) **Credits:** 2
Program Specific: BBACA07 **Time:** 2 Hours
Course Type: Major **Max. Marks:** 30
Paper: **SET: A**

Instructions to the candidate:

1) *All questions are compulsory.*
2) *Figures to the right indicate full marks.*
3) *Draw a well labelled diagram wherever necessary.*

Q1) Answer the following **[5 X 1= 5]**

1) Which of the following is NOT a function for dynamic memory allocation?
   a. malloc b. realloc c. alloc d. free
2) Which of the following is not a sorting method?
   a. Sequential b. Quick c. Merge d. Bubble
3) In which linked list, the last node points to the first
   a. Singly linked list b. Doubly linked list c. Circular list d. Generalized linked list
4) Chairs piled up one above the other represent a
   a. Stack b. Linked List c. Queue d. Array
5) Queue elements are arranged in manner.
   a. LIFO b. FIFO c. FILO d. LILO

Q2) Answer the following (any 5) **[5 X 1 = 5]**

1) Write one application of Linked list.
2) Define algorithm.
3) What is space complexity?
4) Define array.
5) What is meant by in-place sorting?
6) List the types of queues.
7) State the best and worst case time complexity of Bubble sort.

Q3) Answer the following (any 4) **[4 X 4 = 16]**

1) Categorized the types of data structures.
2) What is Array. How two dimensional arrays are represented?
3) What are advantages and limitations of dynamic implementation of stack?
4) Show steps of sorting the following data using Bubble sort

   45, 20, 10, 70, 15, 65, 30
5) What are the four types of linked lists? Illustrate with diagrams.
6) Write a difference between Stack and Queue.

Q4) Answer the following (any 1) **[1 X 4 = 4]**

1) Write a data structure program to check whether a string is palindrome or not.
2) Write a data structure program to accept and sort n elements in ascending order by using insertion sort.

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