



DCCA 201

**II Semester B.C.A. Degree Examination, October/November 2022
(NEP Scheme)**

**COMPUTER APPLICATION
CAC 04 : Data Structures Using C**

Time : 2½ Hours

Max. Marks : 60

Instruction : Answer all the Sections.

SECTION – A

I. Answer **any 6** questions. **Each** question carries **2** marks.

(6×2=12)

- 1) What are primitive data structures ? Give an example.
- 2) What is static memory allocation ?
- 3) Mention any two advantages of recursion.
- 4) Explain the memory representation of two dimensional array.
- 5) Mention the advantages of linked list.
- 6) What is the difference between infix and postfix expression ?
- 7) What are the operations performed on queues ?
- 8) Define height of a binary tree.
- 9) Mention the applications of trees.

SECTION – B

II. Answer **any 4** questions. **Each** question carries **6** marks.

(4×6=24)

- 10) What is a linear data structure ? Explain the different operations performed on linear data structures.
- 11) Write a recursive program to find the GCD of two numbers.
- 12) Write an algorithm for insertion sort method.
- 13) Explain the memory representation of stack using one dimensional array.
- 14) Write a note on different types of queues.
- 15) What is a heap tree ? Explain about different heap trees.

P.T.O.



SECTION – C

III. Answer **any 3** questions. **Each** question carries **8** marks. **(3×8=24)**

- 16) What is a tower of Hanoi problem ? Give the algorithm and explain it with three disc. 4
- 17) a) Write an algorithm to traverse a singly linked lists. 4
b) Explain about Header linked list. 4
- 18) Write a C program to implement simple queue.
- 19) Convert the infix expression $((A + (B - C) * D) \wedge E + F)$ to postfix expression using stack.
- 20) a) What is a binary tree ? Explain pre-order traversal. 4
b) Explain array representation of binary tree. 4