

.....  
**BACHELOR OF TECHNOLOGY (C.B.C.S.) (2021-COURSE)**  
**B. Tech. Sem - II Computer Science & Engineering : WINTER- 2022**  
**SUBJECT : LINEAR DATA STRUCTURES**

Day : Wednesday  
Date : 30-11-2022

W-24028-2022

Time : 10:00 AM-01:00 PM  
Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Draw neat and labeled diagram **WHEREVER** necessary.
- 3) Figures to the right indicate **FULL** marks.
- 4) Assume suitable data if necessary.

- 
- Q.1** Explain Big O notation with any two examples. (10)  
OR
- Q.1** Explain about two dimensional array. Write a C program for multiplication of two matrices. Also explain multidimensional array. (10)
- Q.2** What is circularly linked list? Explain all types of insertion and deletions on circularly linked list. (10)  
OR
- Q.2** What is doubly linked list? Explain all types of insertion and deletions on doubly linked list. (10)
- Q.3** Write an algorithm to convert the infix expression to prefix expression and apply on the given equation. (10)  
(A+B\*C-D) / E^F  
OR
- Q.3** Discuss any three applications of stack in detail. (10)
- Q.4** Describe how to implement queue using array and linked list. (10)  
OR
- Q.4** Explain queue as an abstract data type. What is Dequeue and priority queue. Explain both with examples. (10)
- Q.5** Compare merge sort and quick sort. Comment on time and space complexity in best, worst and average case for both. (10)  
OR
- Q.5** What is hashing what are characteristics of good hash function? Discuss the ways to handle collisions in hashing. (10)
- Q.6** Write a difference between (10)  
i) Binary and Text file  
ii) Sequential file and Random access file  
OR
- Q.6** Explain different modes of opening a file in C using fopen () function. Also write a C program to copy content of a file to another file. (10)

\* \* \*