

BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - II Computer Science & Engineering : WINTER : 2023
SUBJECT : LINEAR DATA STRUCTURES

Day : Friday

Time : 10:00 AM-01:00 PM

Date : 24-11-2023

W-24028-2023

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 importance of time complexity & space complexity of an algorithm (10)
with suitable example. Comment on time & space trade off.
- OR
- Q.1 Explain Big O notation with any two examples. (10)
- Q.2 What is linked list data structure? Discuss memory allocation in linked list and (10)
its advantages over array.
- OR
- Q.2 What is circularly linked list? Explain all types of insertion and deletions on (10)
circularly linked list.
- Q.3 Describe how to implement stack using array and linked list. (10)
- OR
- Q.3 Write an algorithm to convert the infix expression to prefix expression and (10)
apply on the given equation.
 $(A+B*C-D)/E^F$
- Q.4 Describe how to implement queue using array and linked list.
- OR
- Q.4 Discuss any two applications of queue in detail.
- Q.5 State and explain the algorithm to perform Quick sort. Apply quick sort on (10)
5,17,89,1,42,29,73,13.
- OR
- Q.5 What is hashing what are characteristics of good hash function? Discuss the (10)
ways to handle collisions in hashing
- Q.6 Explain any 6 functions used for file handing. (10)
- OR
- Q.6 Explain different modes of opening a file in C using fopen () functions. Also (10)
write a C program to copy content of a file to another file.

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