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

Day : Thursday | Time : 10:00 AM-01:00 PM

Date : 1/6/2023 | **S-24028-2023** | Max. Marks : 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat labelled diagrams **WHEREVER** necessary.

Q.1 Define data structure. Explain need of data structure. Give classification of data structure with one example of each. **(10)**

OR

Q.1 Explain two dimensional array. Write a C program for multiplication of two matrices. Also explain multidimensional array with example. **(10)**

Q.2 What is linked list? Write and explain the algorithm for create, insertion and traverse operations in doubly linked list with example. **(10)**

OR

Q.2 Explain circular linked list in detail. Explain all types of insertions and deletions in circular Linked list. **(10)**

Q.3 Explain Stack in detail. Explain any two applications of stack with example. **(10)**

OR

Q.3 Write the algorithm to convert infix to postfix expression and apply on the given equation: $a+b*c-d/e*f$. **(10)**

Q.4 Explain circular queue. Discuss advantages of circular queue over linear Data structure. Write an algorithm for insertion operation in circular queue. **(10)**

OR

Q.4 Explain DEQUEUE and priority queue in detail with example. **(10)**

Q.5 Write and explain algorithm to perform merge sort. Apply merge sort on 13, 33, 27, 10, 35, 19, 42, 44. **(10)**

OR

Q.5 Explain sorting. Describe working of insertion sort. Demonstrate working of insertion sort algorithm to sort 6 elements. **(10)**

Q.6 Explain any 6 functions used for file handling. **(10)**

OR

Q.6 Write a difference between: **(10)**

i) Sequential file and random access file
ii) Binary and Text file

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