BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-II COMPUTER SCIENCE & BUSINESS SYSTEM : WINTER : 2024
SUBJECT: DATA STRUCTURES & ALGORITHMS

Day : Monday
Date : 25/11/2024

W-27709-2024

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

N.B.

1) All questions are **COMPULSORY**.
2) Figures to the **RIGHT** indicate **FULL** marks.
3) Assume suitable data **IF** necessary.
4) Draw neat labeled diagrams **WHEREVER** necessary.

Q.1 Describe asymptotic and asymptotic notations with examples. **(10)**

OR

Q.1 Define algorithm and list down the different basic terminologies related to the algorithm. **(10)**

Q.2 Define stack. Discuss the basic operations on stack. **(10)**

OR

Q.2 Write down the steps to convert an Infix expression to a postfix with an example. **(10)**

Q.3 Discuss binary tree traversals algorithms with examples. **(10)**

OR

Q.3 Define non liners data structure. Discuss tree and its types. **(10)**

Q.4 Discuss the various types of graph representations with examples. **(10)**

OR

Q.4 Discuss graph and various types of the graph with example. **(10)**

Q.5 How Does linear search algorithm work? Discuss best case worst case and average case complexity for linear search. **(10)**

OR

Q.5 Discuss the following sorting techniques with Time complexity. **(10)**

a) Merge Sort
b) Quick Sort

Q.6 Explain the compact of hashing and how it's used for fast key-based access in hashed file organization. Discuss the potential drawbacks of hashing. **(10)**

OR

Q.6 Differentiate of each type of access scheme and how they used in different file organizations. **(10)**

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