EXAMINATION : MAY - 2024

SEMESTER - I

Sub: Data Structures & Algorithms (MCAI 23-103/MCDS23-103)

| Instruction: 1. All questions are compulsory unless and otherwise stated. 2. Bold figures to the right of every question are the maximum marks for that question 3. Candidates are advised to attempt questions in order. 4. Answers written illegibly are likely to be marked zero. 5. Use of scientific calculators, Log tables, Mollier Charts is allowed. 6. Draw neat and labelled diagram wherever necessary. Q1. Answer the following in 2-3lines. (Any 5) (1. What is the need for an algorithm? 2. What is searching? 3. What is an array? Enlist operations in the array. 4. Write the time complexities of Insertion sort and Merge sort. 5. Define Strictly binary tree 6. What is unweighted graph? 7. Define the term time complexity. Q2. Answer the following in short. (Any 4) (1. What is a symptotic notation? Explain the term big O(O) notation. 2. Write a short note on singly linked list. 4. Explain the different tree representation methods. 5. Explain the difference between tree and graph. 6. Write a short note on priority queue. Q.3. Answer the following in detail. (Any 3) 1. What is sorting? Describe merge sort in detail. 2. Differentiate between greedy method and dynamic programming. | Date :24/05/2024 | | Total Marks :60 | Time: 2.00 pm to 4.30 pm | |
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| 4. Write insertion, deletion and searching operations on AVL trees. 5. What is graph? How to represent graph storage using Adjacency matrix | Q. 3. 1. 2. 3. 4. 5 | Answer the What is sorti Differentiate What is stacl Write inserti What is grap | following in detail. (Any 3) ang? Describe merge sort in detail. between greedy method and dynamic p k? Write an algorithm for operations of on, deletion and searching operations o bh? How to represent graph storage usin | (30) programming. stack with examples. n AVL trees. g Adjacency matrix | 1 |

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CB (Batch 2023-24)