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MASTER OF SCIENCE (M.Sc) in COMPUTER APPLICATIONS
EXAMINATION : DECEMBER - 2024
SEMESTER - I

Sub.: Advanced C Programming and Data Structure (MSC24 -101)

Date : 24/12/2024

Total Marks : 60

Time: 10.00 am To 12.30 pm

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.*

Q. 1. Answer the following in 2-3 lines. (Any 5) (10)

1. Define Data Structure. Why do we need data structures?
2. Which data structure follows LIFO technique?
3. What is postfix Expression?
4. What is binary tree?
5. Define linear search.
6. Define Circular Queue.
7. What are the drawbacks of sequential storage?

Q. 2. Answer the following in short. (Any 4) (20)

1. Differentiate between an array and linked list.
2. Explain the dynamic implementation of stack.
3. Explain insertion operation in BST with example.
4. What is pointer? Explain Array of pointers.
5. Explain Nested structure with suitable example.
6. Explain bubble sort with algorithm.

Q. 3. Answer the following in detail. (Any 3) (30)

1. What is linked list? Explain the terms header node, empty list, Information field, and null pointer with respect to single linked list.
2. How is a heap implemented? Write functions for inserting an element and removing the root element.
3. What is recursive function? Differentiate between iteration and recursive process.
4. Define tree. Explain breadth first traversal algorithm in detail.
5. Define function. Explain call by reference with suitable example.