

TILAK MAHARASHTRA VIDYAPEETH, PUNE
MASTER OF COMPUTER APPLICATIONS
EXAMINATION: DECEMBER - 2024
SEMESTER - I

Sub : Advanced C Programming and Data Structures (MCA24-101)

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. What are the drawbacks of sequential storage?
2. What dynamic memory allocation?
3. What is complete binary tree?
4. Give the node structure of singly linked list.
5. What is pointer? How it is declared?
6. What is degree of tree?
7. What is circular queue?

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

1. What is stack? What are its applications?
2. Write an algorithm for breath first search(BFS) for tree.
3. What does storage class of a variable tell us? What are register variable.
4. Write a function to add node to linked list
5. Write an algorithm to create binary search tree.
6. Write an algorithm to add two polynomial.

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

1. Explain selection sort algorithm?
2. What is queue? Mention its overflow and underflow condition
3. Briefly explain various tree traversal with example.
4. Write C program to sort the stack.
5. Write an algorithm to convert from infix to postfix.
