

TILAK MAHARASHTRA VIDYAPEETH, PUNE
MASTER OF COMPUTER APPLICATIONS (MCA)
EXAMINATION: MAY/JUNE - 2026
SEMESTER - I

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

Date : 1/06/2026

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 structures.
2. What are the applications of stack
3. Define an Abstract Data Type (ADT)
4. What is level of tree?
5. Define static Data Structures
6. Give the node structure of doubly linked list
7. Write the advantages of functions in c.

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

1. List the basic operations carried out in a linked list
2. What are the types of queues?
3. State the rules to be followed during infix to postfix conversions
4. What are pointers? Write a program to find the length of the string using pointers.
5. Explain how stack is used in recursion with suitable example
6. construct a binary search tree using following data
45, 15, 79, 90, 10, 55, 12, 20

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

1. What does storage class of a variable tells us. What are different storage classes available in C
2. What is a stack? What are various operations that can be performed on them? Explain with an example
3. Explain the concept of Dynamic memory allocation with all its functions
4. What is meant by sorting? Write an algorithm for Selection sort and illustrate with an example?
5. Write an algorithm to insert a node at beginning, at the end and insert node at given position.
