

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

Sub : Advanced C Programming and Data Structures (MCA- 101-22)

Date : 29/05/2024

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 objectives of studying data structures?
2. Define root of the tree.
3. What is "Auto" variable?
4. What is string?
5. What is pointer array?
6. What is polish notation?
7. What are the applications of stack?

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

1. Explain the linear search technique
2. Convert $A * (B + C) * D$ to postfix notation.
3. Explain Selection Sort with the help of example.
4. What is binary search technique used on an array?
5. Define data structures? What is static and dynamic Data structures?
6. What are the different binary tree traversal techniques?

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

1. What is sparse matrix? Describe the data structure for the efficient storage of a sparse matrix.
2. Explain the functions for Dynamic memory allocation.
3. What is stack? State the effects of push & pop operation on empty stack?
4. What is a pointer? State the situations when pointers are more effective.
5. What is function? Define function prototype
