

**2024****(Session : 2023-26)**

Time : 3 hours

Full Marks : 50

Candidates are required to give their answers in their own words as far as practicable.

The questions are of equal value.

Answer any **five** questions.

1. (a) What do you mean by the scope of variables in C programming ?

(b) Explain the preprocessor directives differentiate #include and #define.

2. (a) Write a program in C to check whether a string is palindrome or not.

(b) Write a program to print factorial of a given number using recursion function.

3. Explain about function and their types. Differentiate call by value and call by reference.

4. Write a program to merge two sorted linked list.

5. (a) What do you mean by binary tree ? Write the algorithm for binary tree traversal in pre-order, post-order and in-order.

(b) Discuss about binary search algorithm.

6. Write the implementation of queue operation using array and linked list.

7. (a) Discuss with example the quick sort algorithm.

(b) Write about linear and nonlinear data structure.

8. Mention about vector, row major and column major of a matrix. Write program to add two 2\*2 matrix.

