BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-I INFORMATION TECHNOLOGY : WINTER : 2024
SUBJECT: STRUCTURED PROGRAMMING

Day : Friday
Date : 06/12/2024

W-27659-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N. B. :

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labelled diagrams **WHEREVER** necessary.
4) Use of non-programmable calculator is **ALLOWED**.
5) Assume suitable data, if necessary.

Q. 1 List and briefly describe three fundamental stages involved in solving a problem effectively. **(10)**

OR

Q. 1 Explain the concept of "pseudocode" and how it can be used in the development of an algorithm. Create a basic pseudocode algorithm for calculating the average of a list of numbers. **(10)**

Q. 2 How does C compiler handle situations where operands in an expression have different data types? Explain the concept of implicit type promotion and the order in which data types are typically promoted. **(10)**

OR

Q. 2 Provide an example in C code where the outcome is unexpected due to operator precedence and explain how parentheses can be used to override the default precedence and achieve the desired result. **(10)**

Q. 3 Write code using control structures are for following problems: **(10)**
Example 1 : Finding the factorial of a number.
Example 2 : Checking if a number is even or odd.

OR

Q. 3 Describe the syntax for declaring a pointer variable in C. How do you initialize a pointer variable to point to a specific memory location? What happens if you declare a pointer but don't initialize it? **(10)**

Q. 4 Write a program in C to find Quadratic Equation Roots. **(10)**

OR

Q. 4 Explore the concept of passing arrays as function parameters, comparing and contrasting call by value and call by reference mechanisms. Illustrate with examples. **(10)**

Q. 5 Illustrate the use of arrays in implementing searching techniques such as linear and binary search. **(10)**

OR

Q. 5 Write a program that processes strings entered by the user. The program should implement the following functionalities: **(10)**

i) Accept two strings as input from the user and display it.
ii) Perform string concatenation of two strings entered by the user and display the result.

Q. 6 What is file handling? Explain different types of files with examples. **(10)**

OR

Q. 6 Write a program in C to count the number of words and characters in a file. **(10)**

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