

R18

Code No: 152AF

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech I Year II Semester Examinations, September - 2023

PROGRAMMING FOR PROBLEM SOLVING

(Common to EEE, CSE, IT, CSIT, ITE, CE(SE), CSE(CS), CSE(DS), CSE(N), CSD)

Time: 3 Hours

Max. Marks: 75

Note: i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART - A

(25 Marks)

- 1.a) What are the components of a computer system? [2]
- b) What is the purpose of the "main" method in a C program? What are syntax and errors in C logical. [3]
- c) Define a Pointer in C. [2]
- d) Explain the purpose of the 'enum' data type. [3]
- e) What are Text files and Binary files? [2]
- f) How can you append data to an existing file? [3]
- g) What are C standard library functions? [2]
- h) Write about the purpose of parameters and return type of a function. [3]
- i) What is the basic idea behind Binary Search? [2]
- j) Write an algorithm for finding roots of a quadratic equation. [3]

PART - B

(50 Marks)

- 2.a) Compare primary and secondary memory in terms of speed, capacity, and usage scenarios.
 - b) Write a C program to find the sum of digits in a given number. [5+5]
- OR**
- 3.a) Compare and contrast the for, while, and do-while loops in C with suitable examples.
 - b) Provide a detailed explanation of how command-line arguments are passed to a C program. [5+5]

- 4.a) Describe the basic string functions available in C.
- b) Implement a C program that uses an enum to represent the seasons of the year and display the current season. [5+5]

OR

- 5.a) How is a Structure different from an Array in C? Explain.
 - b) Write a program to find Transpose of a given Matrix. [3+7]
- 6.a) How do you read and write structures to a file in C? Explain.
 - b) Write a C program to count no. of occurrences of a word in a given text file. [5+5]

OR

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7.a) Describe the role of a Preprocessor commands in the C program compilation process. Explain undef, ifdef and ifndef directive.

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b) Develop a C program to copy the contents of one text file to another text file. [6+4]

8.a) Discuss the advantages and potential issues of using Dynamic Memory Allocation.

b) Write a C program to generate Fibonacci series using recursion. [5+5]

OR

9.a) Write to a C program to calculate the factorial of a given positive integer using recursion.

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b) How does a recursive function break a complex problem into smaller sub-problems? Explain. [5+5]

10. Describe the process of the Linear Search algorithm. Provide an example and discuss its time complexity. [10]

OR

11. Explain the process of the bubble sort algorithm. Explain with an example and discuss its best-case and worst-case time complexity. [10]

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