

H.T.No:

--	--	--	--	--	--	--	--	--	--

Course Code: 241CS001



ADITYA UNIVERSITY

B.Tech – I Semester End Examinations Regular – Dec 2024

PROGRAMMING FOR PROBLEM SOLVING USING C (Common to EEE, ECE, CSE, IT, CSE(DS) & AIML)

Time: 3 hours

Max. Marks: 50

Answer ONE question from each unit

All Questions Carry Equal Marks

All parts of the questions must be answered at one place only

UNIT-I

- 1 a Describe the time and space complexities of algorithms with examples. L2 CO1 [5M]
b Draw a flowchart using the Dia tool to calculate the sum of two numbers. L2 CO1 [5M]

(OR)

- 2 a Differentiate between type conversion and type casting in C with examples. L2 CO1 [5M]
b Write a C program to calculate the area of a circle using a constant value for π . How would the program's behavior change if we decided to handle π as a floating-point constant instead? L3 CO1 [5M]

UNIT-II

- 3 a Explain the usage of for, while, and do-while loops with suitable examples. L2 CO2 [5M]
b Write a program to find whether a given number is prime or not. L3 CO2 [5M]

(OR)

- 4 a Write a program to print a pyramid pattern of numbers using loops. Assume the pyramid pattern needs to be printed based on user input, with different characters, different alignment, and a variable number of rows. How to design a program to allow for maximum flexibility and customization? L3 CO2 [6M]
b Write a program to calculate the sum of the digits of a five-digit number. L3 CO2 [4M]

UNIT-III

- 5 a Write a C program to search for an element in an array using Linear Search. L3 CO3 [5M]
b Explain the process of sorting an array using Selection Sort with an example. L4 CO3 [5M]

(OR)

- 6 a Write a program to add two 2D matrices. L3 CO3 [5M]
b Explain the usage of string handling functions with examples for strlen(), strcat() and strcpy(). L2 CO3 [5M]

UNIT-IV

- 7 a Write a program to generate Fibonacci numbers using recursion. L3 CO4 [5M]
b Explain the difference between call by value and call by reference with examples. L2 CO4 [5M]

(P.T.O)

(OR)

- 8 a Write a program to calculate the sum of digits of an integer using a recursive function. L3 CO4 [5M]
b Explain how arrays can be passed as parameters to functions with an example. What are the potential risks or common mistakes when passing arrays to functions? L2 CO4 [5M]

UNIT-V

- 9 a Write a program to copy the contents of one file into another. L3 CO5 [5M]
b Explain the concept of a dangling pointer with an example. L2 CO5 [5M]

(OR)

- 10 a Write a program to sort an array of strings lexicographically. L3 CO5 [6M]
b Explain the difference between text files and binary files with examples. L2 CO5 [4M]
