Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN

[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]

Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 50050

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – JAN. / FEB. 2026

First Semester

Computer Science and Engineering

U23CS101 – PROGRAMMING FOR PROBLEM SOLVING

(Common to All)

(Regulation 2023)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Differentiate between interpreter and compiler.	2	K1	CO1
2.	Convert the hexadecimal value $(ABC)_{16}$ to binary.	2	K2	CO1
3.	Define ASCII Code and its purpose.	2	K2	CO2
4.	Write the syntax of ternary operator with example.	2	K1	CO2

5.	Consider an array represented as
	int arr[5]={1,3,5,7,9};
	int *p=arr;
	p++;
	printf("%d", p);
	Determine the output for the above code snippet and justify.
		2	K2	CO3

6.	Define dynamic memory allocation.	2	K1	CO3
7.	List various storage classes supported in C.	2	K1	CO4
8.	Give an example for recursive function.	2	K2	CO4
9.	Differentiate between structure and union.	2	K2	CO5
10.	Write the syntax to write data to a binary file.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Convert the following decimal numbers to binary, octal and hexadecimal values. i. 1563.25 ii. 2462	13	K2	CO1
		(OR)			
	b)	Consider a problem to print all the even numbers from 1 to 100. Demonstrate the solution to the problem using		K2	CO1
		i. Flowchart	7		
		ii. Pseudocode	6		
12.	a)	Explain various types of looping statements in C Programming and the usage of break and continue statements with syntax and examples.	13	K2	CO2
		(OR)			
	b)	Describe various operators in C Programming and its associativity and precedence.	13	K2	CO2
13.	a)	Write a C Program to multiply a given matrix A along with its transpose. ($B=AA^T$).	13	K3	CO3
		(OR)			
	b)	Write a C Program to get the marks of 'n' students in an array and print the following details: i. Average marks of the students ii. Highest mark iii. Lowest Mark	13	K3	CO3
14.	a)	Write a C function to find if a given number is prime by passing an integer value as function parameter. Call the function in main function to print the prime numbers between 1 and 100.	13	K3	CO4
		(OR)			
	b)	Write C functions to perform the following by passing a string as input parameter:		K3	CO4
		i. Print Reverse of a string	7		
		ii. Count of vowels in a string	6		
15.	a)	Write a C Program to create an array of structures to store the details of students such as faculty_id, faculty_name, designation and salary. Print the following details: i. Count of faculty with designation "Assistant Professor". ii. Details of faculty with a given faculty name.	13	K3	CO5

(OR)

b)	Write a C program to read data from a text file and print the number of words in the file.	13	K3	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	A person has 'n' connections in his LinkedIn Profile. The names of the connections are stored in an array. Develop a C Program to sort all the names in ascending order and to print them in upper case.	15	K3	CO4
		(OR)			
	b)	A magic square is a matrix in which the sum of each row, each column and diagonals are the same. Develop a C Program to get input for a matrix and determine if the matrix is a magic square or not. Eg. The matrix given below is an example of a magic square. Each row, each column and diagonal values has a sum of 15.	15	K3	CO4

$$\begin{bmatrix} 8 & 1 & 6 \\ 3 & 5 & 7 \\ 4 & 9 & 2 \end{bmatrix}$$