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: 50053

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – FEB. 2025
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.	Identify the importance of compilation process in programming language.	2	K2	CO1
2.	Convert the decimal number 255 to hexadecimal.	2	K3	CO1
3.	Outline a C statement to find maximum of two numbers using ternary operator.	2	K3	CO2
4.	Relate while and do-while loop in 'C'.	2	K2	CO2

5.	Identify the output generated by the following program
	#include<stdio.h>
	int main()
	{
	int x, y=0;
	int z[10]={ 2,4,6,8,10,12,14,16,18,20}
	for(x=0;x<10;++x)
	y + = z[x];
	printf("%d",y);
	}
		2	K2	CO3

6.	Show with an example the use of Pointers in C.	2	K2	CO3
7.	Build a recursive function to generate the n^{th} Fibonacci number.	2	K3	CO4

8.	Utilize the strrev() function by demonstrating its syntax and usage in a C program.	2	K3	CO4
9.	Identify the process of initializing a structure in C.	2	K2	CO5
10.	With an example, give the syntax for opening a file in read-only mode in C.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Develop flowchart to check whether a given year is a leap year or not.	8	K3	CO1
	b)	Explain how to detect the given binary number 1101101 is in even or odd and Convert it to decimal, octal and hexadecimal.	5	K3	CO1
		(OR)			
	a)	Identify the two main phases of compilation and explain the key differences between a compiler and an interpreter.	8	K2	CO1
	b)	Develop a Pseudocode to calculate the simple interest.	5	K3	CO1
12.	a)	Explain different data types and format specifier of each data type with suitable example.	8	K2	CO2
	b)	Justify the statement "Switch Case" is more convenient than "else if " with an example.	5	K4	CO2
		(OR)			
	a)	Construct a C Program to find the value of the series $1^2 + 2^2 + 3^2 + \ldots + n^2$ using for loop.	8	K3	CO2
	b)	Illustrate the importance of break and continue statement with an example.	5	K2	CO2
13.	a)	Develop a C program to input n values using an integer array, arrange the values in ascending order and display the minimum and maximum value in the array.	8	K3	CO3
	b)	Identify the various ways of declaring and initializing single-dimensional and two-dimensional arrays.	5	K3	CO3
		(OR)			
	a)	Construct a program that initially allocates memory for an array of 5 integers. Allow the user to add more integers, using realloc to increase the array size as needed. Display the updated array and free the memory.	8	K3	CO3
	b)	Write a C program to swap two numbers using pointers.	5	K3	CO3

14.	a)	Construct a recursive function to calculate factorial of any number n ranging between 1 and 15.	8	K3	CO4
	b)	Identify the usage of a variable declared as static within a function using a suitable example.	5	K3	CO4
		(OR)			
	a)	Construct a C program that removes all whitespace characters from a given string.	8	K3	CO4
	b)	Outline the different string handling library function with an example C code.	5	K2	CO4
15.	a)	Define a structure GraphPoint with fields for x and y coordinates. Construct a C program to find the midpoint between two GraphPoints.	10	K3	CO5
	b)	Distinguish Structure and Union.	3	K2	CO5
		(OR)			
	a)	Identify the difference between text files and binary files.	4	K2	CO5
		Write a program to read and write binary data to a file using structures.	6	K3	
	b)	List out the use of fseek(), ftell(), and rewind() functions in manipulating file positions.	3	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	The record holds information about books in a library, including title, author, ISBN, publication year, and availability status. Create an array of structures to hold the record of N books. Construct a C program to add new books, display the list of available books, and search for a book by its ISBN.	15	K3	CO5
		(OR)			
	a)	A company maintains a file of employee records, where each record includes: i. Name ii. Position iii. Age iv. Salary Construct a C program to read the file and print the list of all employees whose age is below 30 and salary is above Rs.60,000.	15	K3	CO5