Reg. No.															

Question Paper Code	13748

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2025

First Semester

Computer Science and Engineering

(Common to Artificial Intelligence and Data Science, Civil Engineering, Computer Science and Engineering (AIML), Computer Science and Engineering (Cyber Security), Computer Science and Business Systems, Electronics and Communication Engineering, Information Technology, Mechanical Engineering, M.Tech - Computer Science and Engineering (5 Years Integrated))

24ESCS101 – PROBLEM SOLVING AND PROGRAMMING IN C

Regulations - 2024

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Which of the following symbols is used to represent a decision in a flowchart? (a) Rectangle (b) Diamond (c) Oval (d) Parallelogram	1	K2	CO1
2.	Which of the following is an example of a constant? (a) int x; (b) float y = 3.14; (c) char z; (d) const int PI = 3;	1	K2	CO1
3.	What is the result of the expression 5 > 3 && 4 < 6? (a) True (b) False (c) Error (d) None of the above	1	K2	CO2
4.	In a for loop, which part is executed only once? (a) Initialization (b) Condition (c) Update (d) All parts are executed multiple times	1	K2	CO2
5.	What is the correct syntax for declaring an array of 10 characters? (a) char[10] arr; (b) char arr[10]; (c) char arr(10); (d) array char arr[10];	1	K1	CO3
6.	Which statement correctly describes the purpose of the null character '\0' in strings? (a) It indicates the start of the string (b) It represents the length of the string (c) It marks the end of the string for string manipulation functions (d) It has no purpose in strings	1	K2	CO3
7.	Given the declaration 'int (*ptr)[5];', what does 'ptr' represent? (a) 'ptr' is a pointer to an integer (b) 'ptr' is a pointer to an integer array with 5 elements (c) 'ptr' is an array of 5 pointers to integers (d) 'ptr' is an array of 5 integers	1	K1	CO4
8.	Which of the following in-built function is used to find length of given string in C? (a) strlen( ) (b) strcat( ) (c) strstr( ) (d) none of the mentioned	1	K1	CO4
9.	A self referential structure in C refers to itself using a_____ (a) Pointer (b) Float (c) Structure (d) character	1	K1	CO5
10.	Which compilation unit is responsible for adding header files content in the source code? (a) Linker (b) Compiler (c) Assembler (d) Preprocessor	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

		Marks	K – Level	CO
11.	Define Pseudo Code.	2	K1	CO1
12.	Write an algorithm to check a number is prime or not.	2	K2	CO1
13.	Differentiate between break and continue.	2	K2	CO2
14.	Write a C program for GCD of two numbers.	2	K2	CO2

15.	Mention the various String Manipulation Functions in C.	*2*	*K1*	*CO3*
16.	Define Array initialization with an example.	*2*	*K1*	*CO3*
17.	Differentiate between formal parameters and actual Parameters.	*2*	*K2*	*CO4*
18.	Express the difference between function declaration and Function definition.	*2*	*K2*	*CO4*
19.	Explain how typedef is used in structure.	*2*	*K2*	*CO5*
20.	Summarize the different types of memory allocation functions.	*2*	*K2*	*CO5*
21.	Distinguish between Sequential access and Random access.	*2*	*K2*	*CO6*
22.	List out the various file handling functions.	*2*	*K1*	*CO6*

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Describe the complete compilation process of a C program, detailing in each phase.	*11*	*K2*	*CO1*
		OR			
	b)	Explain type conversion in C with examples. Discuss the difference between implicit and explicit conversion, and the potential issues with each.	*11*	*K2*	*CO1*
24.	a)	Explain the various types of decision making and branching statements in C.	*11*	*K2*	*CO2*
		OR			
	b)	Write a C program to calculate Compound Interest. Get the inputs from the user and display the output.	*11*	*K2*	*CO2*
25.	a)	Explain in detail about the concept of selection sort with example program.	*11*	*K2*	*CO3*
		OR			
	b)	Write a C program to calculate the mean, median, mode for an array of elements.	*11*	*K2*	*CO3*
26.	a)	Explain different types of function prototypes based on parameters and return types with suitable examples for each.	*11*	*K2*	*CO4*
		OR			
	b)	Explain in detail about recursion concept and write a suitable program to find factorial of n numbers.	*11*	*K2*	*CO4*
27.	a)	Explain about the structures and its operations.	*11*	*K2*	*CO5*
		OR			
	b)	Explain with an example the self-referential structure.	*11*	*K2*	*CO5*
28.	a)	Explain about files and with it types of file processing.	*11*	*K2*	*CO6*
		OR			
	b)	Explain how to write a structure to a random access file in C.	*11*	*K2*	*CO6*