Reg. No.															

Sri
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Sai Leo Nagar, West Tambaram, Chennai - 600 044. www.sairam.edu.in

Question Paper Code	14244

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025

First Semester

Computer Science and Engineering

(Common to All)

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.	What does the term "memory allocation" refer to ? (a) Using a constant value (b) Reserving space in memory for data (c) Creating a flowchart (d) Writing pseudocode	1	K1	CO1
2.	In which phase is the program converted from source code to machine code? (a) Debugging (b) Preprocessing (c) Compilation (d) Execution	1	K1	CO1
3.	Which operator is used to perform a bitwise OR operation? (a) | (b) || (c) & (d) &&	1	K1	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	K1	CO2

5.	What will be the output of the following code?
	int arr[] = {2, 4, 6, 8};
	arr[2] += arr[0];
	printf("%d", arr[2]);
	(a) 8 (b) 6 (c) 10 (d) 12
		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	K1	CO3
7.	What is the purpose of the function call stack in C? (a) To store global variables. (b) To keep track of function call order and local variables. (c) To store function prototypes. (d) To manage file I/O operations.	1	K1	CO4
8.	What are types of Functions in C Language.? (a) Library Functions. (b) User Defined Functions. (c) Both Library and User Defined (d) None of the mentioned.	1	K1	CO4
9.	What is the primary purpose of the malloc() function in C? (a) To create a new life. (b) To allocate memory for new structure. (c) To allocate dynamic memory for data at runtime. (d) To open an existing file.	1	K1	CO5
10.	Which of the following commands does the same work as that of a rewind() ? (a) fseek(fp, 0, SEEK_SET) (b) fseek(fp, 6, SEEK_SET) (c) ftell(fp) (d) fseek(fp, 1, SEEK_SET)	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

11.		Compare Syntax Error and Semantic Error.	2	K2	CO1
12.		Write an algorithm to check a number is prime or not.	2	K2	CO1
13.		Explain how the ternary operator works with an example.	2	K2	CO2
14.		Write a C program to find the maximum of three numbers a, b, and c using an if-else statement.	2	K2	CO2
15.		Write the necessity of giving the size of an array in an array declaration.	2	K2	CO3
16.		Discuss about the linear search.	2	K2	CO3
17.		Define recursive function.	2	K1	CO4
18.		Define pointer.	2	K1	CO4
19.		Write the use of dot operator on structure.	2	K2	CO5
20.		Compare the Structure and an Array.	2	K2	CO5
21.		What is meant by command line argument? Give an example.	2	K1	CO6
22.		What are the different modes of a file?	2	K1	CO6

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a) (i)	Write an algorithm to find the area and circumference of a circle.	6	K2	CO1
	(ii)	Write a Pseudo code to find the area of a triangle.	5	K2	CO1
		OR			
	b)	Explain the data types and keywords used in C, and describe its importance in programming.	11	K2	CO1
24.	a)	Compare “else-if ladder” and “switch-case” statements with appropriate C programs.	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 an example program.	11	K2	CO3
		OR			
	b)	Write a C Program to find matrix multiplication of 3X3 matrix.	11	K2	CO3
26.	a)	Explain in detail about recursion concept with a suitable program.	11	K2	CO4
		OR			
	b)	Explain in detail about Pass by Value and Pass by Reference and write a program to swap two numbers using pass by value and pass by reference.	11	K2	CO4
27.	a)	Explain the self-referential structure with an example program.	11	K2	CO5
		OR			
	b) (i)	Explain a structure with data Members of various types and declare two structure variables. Write a program to read data into these and print the same.	7	K2	CO5
	(ii)	Justify the need for structured data type.	4	K2	CO5
28.	a)	Develop a C Program to read content of a File using file concept and display it.	11	K3	CO6
		OR			
	b)	Make use of random access file concept in C and append some content in a file.	11	K3	CO6