Reg. No.																

Question Paper Code	14130

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

First Semester

Computer Science and Engineering

(Common to All Branches)

20ESCS101 – PROBLEM SOLVING AND PROGRAMMING IN C

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Algorithms can be represented (a) as pseudo codes (b) as syntax (c) as programs (d) as flowcharts	1	K1	CO1

2.	Which of the following series will be printed by the given pseudocode?
	Integer a, b, c;
	Set b = 0, c = 0
	for(each a from 1 to 5)
	print c
	b = b + 1
	c = c + b
	end for
	(a) 5 4 3 2 1 (b) 0 1 3 6 10 (c) 2 5 8 9 10 (d) 0 0 0 0 0
		1	K1	CO1

3.	Which of the following is not a valid C variable name? (a) int number; (b) float rate; (c) int variable_count; (d) int $main;	1	K1	CO2
4.	Which of the following is a valid expression in C? (a) a = b = c = 5; (b) a = b == c; (c) a = b +; (d) a = + b c;	1	K1	CO2
5.	Which header file is necessary for strlen() function? (a) conio.h (b) strings.h (c) string.h (d) stdio.h	1	K1	CO3
6.	The format specifier used to print a String or Character array in C printf or scanf function (a) %c (b) %C (c) %s (d) %w	1	K1	CO3
7.	Which of the following function declaration is illegal? (a) int 1bhk(int); (b) int 1bhk(int a); (c) int 2bhk(int*, int []); (d) all of the mentioned	1	K1	CO4
8.	Function have_____ (a) Local scope (b) Block scope (c) File scope (d) No scope	1	K1	CO4
9.	Which of the following operator is used to select a member of a structure variable (a) .(dot) (b) ,(comma) (c) : (colon) (d) ;(semicolon)	1	K1	CO5
10.	What are the C functions used to read or write a file in text mode? (a) fprintf(), fscanf() (b) fread(), fwrite() (c) fprint(), fscan() (d) read(), write()	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

		Marks	K – Level	CO
11.	Define Flowchart.	2	K1	CO1
12.	Compare static linking with dynamic linking.	2	K2	CO1
13.	List the different data types in C.	2	K1	CO2
14.	Write a C program to print a list of odd numbers from 1 to n.	2	K1	CO2
15.	List the characteristics of an array.	2	K1	CO3
16.	Illustrate Sorting with an example.	2	K2	CO3
17.	Differentiate between ptr++ and *ptr++.	2	K2	CO4
18.	Recall the function of dangling pointer.	2	K1	CO4

19.	Define Structures in C with an example.		2	K1	CO5
20.	Show the syntax for malloc() and Calloc().		2	K2	CO5
21.	Name the different modes of files in C.		2	K1	CO6
22.	Compare sequential access and random access in file.		2	K2	CO6

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Explain various phases in the Program Development Life Cycle with a neat diagram.	11	K2	CO1
		OR			
	b) (i)	What is flowchart? Discuss the uses of various symbols used in flowchart.	6	K2	CO1
	(ii)	Draw a flowchart to swap two numbers without temporary variables.	5	K2	CO1
24.	a)	Explain in detail about decision making and branching in C with suitable examples for each.	11	K2	CO2
		OR			
	b) (i)	Outline a C Program for a simple calculator using a switch statement.	6	K2	CO2
	(ii)	Write and explain a C program to find the largest of three numbers.	5	K2	CO2
25.	a)	Define array. Demonstrate how to declare and initialize a one dimensional and two dimensional arrays with an example program.	11	K2	CO3
		OR			
	b)	Explain in detail about various string handling functions available in C language and give an example program for any three string handling functions.	11	K2	CO3
26.	a)	Define function. Identify the built in functions available in string.h header file and show its syntax and example.	11	K3	CO4
		OR			
	b)	Examine the working of pass by value and pass by reference with a program to swap two numbers.	11	K3	CO4
27.	a)	Explain the following			
	(i)	Array of structures with suitable example.	6	K2	CO5
	(ii)	Nested structures with an example program.	5	K2	CO5
		OR			
	b)	Explain in detail about storage class specifiers with suitable programs for each category.	11	K2	CO5
28.	a)	Demonstrate how to insert an element at the beginning, middle and end in the singly linked list with a C program.	11	K2	CO6
		OR			
	b)	Illustrate the steps involved in copying the content of one file to another file using file operations.	11	K2	CO6