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G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.

UG DEGREE END SEMESTER EXAMINATIONS - APRIL 2025.
(For those admitted in June 2023 and later)

PROGRAMME AND BRANCH: B.Sc., INFORMATION TECHNOLOGY

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
I	PART - III	CORE - 1	U23IT101	PROGRAMMING IN C

Date & Session:23.04.2025/FN   **Time : 3 Hours**   **Maximum 75 Marks**

Course Outcome	Bloom's K-level	Q. No.	SECTION – A (10 X 1 = 10 Marks) Answer ALL Questions.
CO1	K1	1.	The originator of C language is: a) James Gosling b) Dennis Ritchie c) Bjarne Stroustrup d) Tim Berners-Lee
CO1	K2	2.	What is the output of printf("%d", 5 / 2); in C? a) 2.5 b) 2 c) 3 d) Compilation error
CO2	K1	3.	Which loop is exit-controlled? a) for b) while c) do-while d) if-else
CO2	K2	4.	What is the value of arr[3] if int arr[] = {10, 20, 30, 40};? a) 10 b) 30 c) 40 d) Garbage value
CO3	K1	5.	A function in C can return: a) Only one value b) Multiple values c) No value d) All of the above
CO3	K2	6.	What is the output of: int add(int a, int b) { return a + b; } printf("%d", add(3, 5)); a) 3 b) 5 c) 8 d) 35
CO4	K1	7.	The keyword to define a union in C is: a) struct b) union c) class d) object
CO4	K2	8.	What is the size of struct { char c; int i; } (assuming 4-byte int)? a) 5 bytes b) 8 bytes c) 6 bytes d) 4 bytes
CO5	K1	9.	The operator to get the address of a variable is: a) * b) & c) # d) @
CO5	K2	10.	Which mode opens a file for appending data? a) r b) w c) a d) r+
Course Outcome	Bloom's K-level	Q. No.	SECTION – B (5 X 5 = 25 Marks) Answer ALL Questions choosing either (a) or (b)
CO1	K3	11a.	Explain the "Language Evaluation Criteria" with examples. **(OR)**
CO1	K3	11b.	Compare compiled vs interpreted languages and discuss why C is a compiled language.
CO2	K3	12a.	Write a C program to check if a number is prime using a for loop. **(OR)**
CO2	K3	12b.	Explain how strings are stored in C and demonstrate with an example of initializing a character array.

Course Outcome	Bloom's K-level	Q. No.	
CO3	K4	13a.	Differentiate between call by value and call by reference in C functions with examples.
			(OR)
CO3	K4	13b.	Write a recursive function to calculate the sum of the first N natural numbers and explain its working.
CO4	K4	14a.	Explain the difference between structures and unions in C, including memory allocation.
			(OR)
CO4	K4	14b.	Write a C program to store student details (name, roll no, marks) using a structure and display them.
CO5	K3	15a.	Write a C program to copy the contents of one file to another using file handling functions.
			(OR)
CO5	K3	15b.	Explain the concept of pointers to pointers with a diagram and example code.

Course Outcome	Bloom's K-level	Q. No.	**SECTION – C (5 X 8 = 40 Marks)** **Answer ALL Questions choosing either (a) or (b)**
CO1	K3	16a.	Discuss the importance of the C programming language in system programming and embedded systems. Provide real-world examples.
			(OR)
CO1	K3	16b.	Analyze the basic structure of a C program with a flowchart and explain the role of preprocessor directives.
CO2	K5	17a.	Design a C program to sort an array of integers using the bubble sort algorithm. Explain each step.
			(OR)
CO2	K5	17b.	Write a C program to merge two strings without using library functions and explain the logic.
CO3	K5	18a.	Create a C program using recursion to reverse a string and trace the execution for input "hello".
			(OR)
CO3	K5	18b.	Evaluate the advantages and limitations of recursion over iteration with programmatic examples.
CO4	K6	19a.	Develop a C program to manage a library database using structures (include fields: book ID, title, author). Implement add, display, and search functions.
			(OR)
CO4	K6	19b.	Compare arrays of structures and linked lists in terms of memory efficiency and operations.
CO5	K5	20a.	Implement a C program to read a file, count vowels, and write the result to another file. Handle file exceptions.
			(OR)
CO5	K5	20b.	Design a C program to simulate a student record system using pointers and dynamic memory allocation. Include functions to add, delete, and display records.