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25CMU101 / 25ITU101/25CTU101/25NMU101 / 25DAU101/ 22DAU01N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Common to Branches - **COMPUTER SCIENCE / INFORMATION TECHNOLOGY / COMPUTER TECHNOLOGY / COMPUTER NETWORKING & MOBILE APPLICATIONS / COMPUTER SCIENCE WITH DATA ANALYTICS**

PROGRAMMING AND PROBLEM SOLVING USING C

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which of the following programming paradigms is associated with modular design? A) Object-Oriented Programming B) Functional Programming C) Procedural Programming D) All of the above	K1	CO1
	2	Estimate the output of **printf("%d", 10 / 4);** in C. A) 2.5 B) 2 C) 3 D) 2.0	K2	CO1
2	3	Tabulate the correct order of execution in a for loop. A) Initialization → Condition → Update → Body B) Condition → Initialization → Body → Update C) Initialization → Body → Condition → Update D) Body → Initialization → Condition → Update	K1	CO2
	4	Classify which of the following is a valid way to declare and initialize a string in C. A) char str[5] = "Hello"; B) char str[] = "Hello"; C) string str = "Hello"; D) char str = "Hello";	K2	CO2
3	5	Identify the valid index range for an array int a[5];. A) 1 to 5 B) 0 to 4 C) 0 to 5 D) -1 to 4	K1	CO3
	6	Identify the operator used to access the value stored at the memory address of a pointer. A) & B) * C) -> D) .	K2	CO3
4	7	Identify the correct statement about a function prototype. A) It is written after main() only B) It specifies function name, parameters, and return type before its use C) It allocates memory for function variables D) It executes the function automatically	K1	CO4
	8	Compare structure and union. Which statement is true? A) Both allocate separate memory for each member B) Union allocates shared memory for all members C) Structure cannot contain arrays D) Union supports nested definitions, but structure does not	K2	CO4
5	9	Describe what happens when a file is opened with "w" mode. A) Opens for writing only B) Opens for appending only C) Opens for writing, deletes existing contents D) Opens for both reading and writing	K1	CO5
	10	Which of the following is argv[0] when a program runs. A) First command line argument B) Program name/path C) Null character D) Last argument	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Apply the steps involved in program development and demonstrate with suitable examples.	K3	CO3
		(OR)		
	11.b.	Write a C program to demonstrate formatted input/output using scanf() and printf()		
2	12.a.	Review the advantages and disadvantages of using the goto statement in C.	K2	CO2
		(OR)		
	12.b.	Discuss the importance of string conversion functions in handling user input.		
3	13.a.	Discuss how arrays are related to strings in terms of declaration and storage.	K3	CO3
		(OR)		
	13.b.	Illustrate with a program how to assign the address of a variable to a pointer.		
4	14.a.	Examine the definition of function in C and explain its general syntax with an example.	K4	CO4
		(OR)		
	14.b.	Analyze the difference between a structure and a union		
5	15.a.	Discriminate between formatted and unformatted file I/O functions.	K1	CO5
		(OR)		
	15.b.	What are command line arguments in C? Examine their purpose with an example.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Analyze identifiers and keywords in C with suitable examples.	K4	CO1
2	17	Explore about Standard Functions of string handling with examples.	K4	CO2
3	18	How arrays of pointers are useful in handling function arguments? Justify with an example.	K4	CO3
4	19	Define a function prototype and Develop a program with a function prototype for addition of two numbers.	K4	CO4
5	20	List out the steps involved in performing file operations in C, with example.	K4	CO5

Z-Z-Z END