PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2025
(First Semester)

Branch – COMPUTER SCIENCE

PROBLEM SOLVING USING C PROGRAMMING

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	In a flowchart, what does the oval symbol typically represent? a) A decision point b) Input or output operations c) The beginning or end of the process d) A process or task	K1	CO1
	2	_____ is the output of the compilation process in C. a) Source code b) Byte code c) Assembly code d) Executable file	K2	CO1
2	3	Identify the result of the expression 3 + 2 * 6 in C. a) 11 b) 14 c) 15 d) 30	K2	CO2

	4	What is the output of the following code?
		 int i = 0;
		 do {
		    printf("%d", i);
		    i++;
		 } while (i < 3);
		 a) 0 b) 0 1 2 c) 1 2 3 d) 0 1 2 3
			K1	CO2

3	5	Which of the following is the correct way to declare an array of 10 integers in C? a) int arr(10); b) int arr[10]; c) array int[10]; d) arr[10] int;	K1	CO3
	6	_____ is the default storage class of a local variable in C. a) auto b) register c) static d) extern	K2	CO3

4	7	How would you access the name of the first student from the following structure array?
		 struct Student {
		   int id;
		   char name[50];
		 };
		 struct Student students[3];
		
		 a) students[1].name; b) students[0].name;
		 c) students[1].name[0]; d) students.name[0];
			K1	CO4

	8	_____ functions is used to read a character from a file in C. a) fscanf ( ) b) fgets( ) c) fread ( ) d) fgetc ( )	K2	CO4
5	9	_____ is used to define a macro in C. a) #macro b) #define c) #include d) #preprocessor	K2	CO5
	10	What is the correct syntax for including a user-defined file in C? a) #include file.h b) #import "file.h" c) #include <file.h> d) #include "file.h"	K1	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.	Explain about algorithm and its characteristics.	K2	CO1
		(OR)		
	11.b.	Show the processes in execution of a C program.		
2	12.a.	Recall the Primary data types in C with relevant examples.	K1	CO2
		(OR)		
	12.b.	List the different types of if statement in C with examples.		
3	13.a.	Write down the syntax for declaring a character array in C, and how do you initialize it with a string value.	K3	CO3
		(OR)		
	13.b.	Construct a C program that uses function pointers to select and execute different arithmetic operations based on user input.		
4	14.a.	Analyze how structures and unions can be used together in C to manage heterogeneous data types efficiently.	K4	CO4
		(OR)		
	14.b.	Inspect the syntax of getw and putw functions in C.		
5	15.a.	Create a C program using fread and fwrite to copy the contents of one file to another.	K5	CO5
		(OR)		
	15.b.	Evaluate the scenarios where enum should be preferred over preprocessor macros in defining symbolic constants.		

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	Explain how to apply a systematic approach to problem-solving.	K3	CO1
2	17	List the different types of operators in C with relevant examples.	K1	CO2
3	18	Consider a recursive function that calculates the factorial of a number, analyze its performance in terms of time complexity and space complexity.	K4	CO3
4	19	Create C program that defines a structure for a student (name, roll number, marks) and calculates the average marks of three students.	K5	CO4
5	20	Demonstrate a C program that accepts two integers as command-line arguments, adds them, and prints the result.	K2	CO5

Z-Z-Z   END