22NMB101N

PSG COLLEGE OF ARTS & SCIENCE

(AUTONOMOUS)

BVoc DEGREE EXAMINATION MAY 2025

(First Semester)

Branch - **NETWORKING AND MOBILE APPLICATION**

PROBLEM SOLVING TECHNIQUES 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 shapes is used in a flowchart to represent input or output? a) Circle b) Rectangle c) Parallelogram d) Diamond	K1	CO1
	2	What is the first step in algorithm design? a) Debugging the program b) Testing the algorithm c) Understanding the problem d) Writing the code	K2	CO1
2	3	Who developed the C programming language? a) Bjarne Stroustrup b) James Gosling c) Dennis Ritchie d) Ken Thompson	K1	CO1
	4	C programming language was developed at which institution? a) Massachusetts Institute of Technology (MIT) b) Microsoft c) Bell Labs d) Sun Microsystems	K2	CO1
3	5	Which of the following statements will correctly evaluate if x is greater than 10? a) if (x = 10) b) if (x > 10) c) if (x >= 10) d) if (x < 10)	K1	CO1
	6	Which of the following is true about the else part of an if-else statement? a) It must always be present. b) It executes when the if condition is true. c) It executes when the if condition is false. d) It is optional and can be omitted.	K2	CO1
4	7	What is a pointer in C? a) A keyword used to define variables b) A data type used to store addresses of other variables c) A special kind of array d) A library function to perform memory management	K1	CO1
	8	Which of the following correctly declares a pointer variable in C? a) int ptr b) int *ptr c) ptr int d) int ptr*	K2	CO1
5	9	Which keyword is used to define a union in C? a) struct b) union c) enum d) typedef	K1	CO1
	10	How much memory does a union take? a) The size of the largest member b) The sum of all the members' sizes c) The size of the first member d) A fixed size of 4 bytes	K2	CO1

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.	Compare and contrast top-down and bottom-up approaches in algorithm design.	K4	CO5
		(OR)		
	11.b.	Analyze the key characteristics of algorithms and discuss their importance in evaluating algorithmic efficiency.		

Cont...

2	12.a.	Compare and contrast compilers and interpreters in terms of their functionality, performance, and use cases.	K3	CO2
		(OR)		
	12.b.	Explain the role and usage of variables in C programming. Describe how variables are declared, initialized, and used in a C program.		
3	13.a.	Evaluate the effectiveness of various selection statements such as if, if-else, in C programming for controlling program flow based on different conditions.	K5	CO5
		(OR)		
	13.b.	Evaluate the use of different iteration statements such for, while, do-while in C programming for repetitive tasks.		
4	14.a.	Evaluate the usage and impact of pointer operators in C programming by designing a program.	K5	CO5
		(OR)		
	14.b.	Evaluate the design and implementation of functions in C programming by creating a program that performs the following tasks: a) Function Return Values: Use functions to return values and demonstrate how the return values are used in the main function.		
5	15.a.	Design a C program that uses an array of structures to manage a student database for a school.	K4	CO5
		(OR)		
	15.b.	Discuss the design and implementation considerations for using arrays of structures in a real-world application.		

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	Discuss the key concepts of problem-solving in programming. Explain the importance of clearly defining a problem before starting the coding process.	K4	CO5
2	17	Analyze how different storage class specifiers affect the storage duration and visibility of variables.	K4	CO5
3	18	Evaluate the impact of each type of expression statement on the program's functionality and performance.	K5	CO5
4	19	Design and implement a C program that demonstrates the concept of function scope, including the use of local, global, and static variables.	K6	CO5
5	20	Explain detailed notes of file handling in C, including the concepts of file streams, file pointers, and standard file operations open, read, write, and close.	K4	CO5

Z-Z-Z END