

B.M.S.College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

February / March 2025 Semester End Main Examinations

Programme: B.E.

Semester: I / II

Branch: Common to all Branches

Duration: 3 hrs.

Course Code: 22CS1ESPOP / 22CS2ESPOP

Max Marks: 100

Course: Principles of Programming in C

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.			UNIT - I	CO	PO	Marks
	1	a)	Explain the basic structure of C Program with an example program.	CO1	PO 1	7
		b)	Evaluate the following expressions i) $22+3 < 6 \ \&\& \ !5 \parallel 22 == 7 \ \&\& \ 22-2 > +5$ ii) $x = a - b/3 + c * 2 - 1$ where, a=9, b=12, c=3	CO2	PO2	6
		c)	Write a C program to print the digit at one's place of a number. Write an algorithm or flowchart for the same.	CO3	PO3	7
			OR			
	2	a)	Explain the Basic organization of a computer with neat block diagram.	CO1	PO 1	7
		b)	Define Variable. Explain the rules to declare a variable with an example.	CO1	PO 1	6
		c)	Design a C program to find the largest of three numbers using ternary operator. Write an algorithm for the same.	CO3	PO3	7
			UNIT - II			
	3	a)	Develop a C program to print the following pattern. 1 2 2 3 3 3 4 4 4 4	CO3	PO3	6
		b)	Write the general syntax of break and continue statement with suitable example.	CO1	PO 1	6
		c)	Develop a C program to find all the possible roots of a Quadratic equation.	CO3	PO3	8

		OR			
4	a)	List out the conditional branching statements in C. Explain any two with an example.	CO1	PO 1	6
	b)	Differentiate between while and do-while loop with an example.	CO1	PO 1	6
	c)	Write a C program to enter a number from 1-7 and display the corresponding day of the week using switch case statement.	CO3	PO3	8
		UNIT - III			
5	a)	Differentiate between Call by Value and Call by Reference. Write a C program to find the factorial of a number using Call-by-Value and Call-by-Reference. Outline how both are different.	CO3	PO3	10
	b)	Develop a C program to multiply two m x n matrices and also write expected output.	CO3	PO3	10
		OR			
6	a)	Explain the elements of a function with syntax and write a program to swap two values.	CO1	PO 1	10
	b)	Develop a C program to search for an element in an array using Binary search technique. Write the expected output.	CO3	PO3	10
		UNIT - IV			
7	a)	Write functions to implement String operations such as concatenation and String length without using built-in functions.	CO1	PO 1	10
	b)	Write a C program to create a structure to read, write and compute average salary of the employees, and list the employees earning a salary above and below the average salary for a department of N employees. (Consider Employee DOB as a nested structure).	CO3	PO3	10
		OR			
8	a)	Implement a C Program using structures to read, write and compute average marks and the students scoring below and above average in a class of 'N' students.	CO3	PO3	10
	b)	Discuss any four string manipulation functions with programming example.	CO1	PO 1	10
		UNIT - V			
9	a)	Analyze and predict the output of the following code. #include <stdio.h> int main () { int *ptr; int x ; ptr = &x;	CO2	PO 2	4

			<pre> *ptr = 0; printf(" x = %d", x); printf(" *ptr = %d", *ptr); *ptr += 5; printf(" x = %d", x); printf(" *ptr = %d", *ptr); (*ptr)++; printf(" x = %d", x); printf(" *ptr = %d", *ptr); return 0; } </pre>			
		b)	Illustrate the use of the following file processing functions with an example. i) fputs (ii) fscanf() iii) fwrite() iv) fread()	CO1	PO 1	8
		c)	Develop a C program using pointers to compute sum mean and standard deviation of all elements stored in an array of N real number.	CO3	PO3	8
			OR			
	10	a)	Illustrate the use of the following file processing functions with an example. i) fgets(ii) fprintf()	CO1	PO 1	4
		b)	Demonstrate how to read data from the keyboard, write it to a file called TEXT, again read the same data from the TEXT file, and display it on the screen/console.	CO1	PO 1	8
		c)	Write a program to swap the contents of two integer variables using pointers.	CO3	PO3	8
