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# 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.

<b>UNIT - I</b>			<b>CO</b>	<b>PO</b>	<b>Marks</b>	
<b>Important Note:</b> Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.	1	a)	Explain the basic structure of C Program with an example program.	CO1	PO 1	<b>7</b>
		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	<b>6</b>
		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	<b>7</b>
<b>OR</b>						
	2	a)	Explain the Basic organization of a computer with neat block diagram.	CO1	PO 1	<b>7</b>
		b)	Define Variable. Explain the rules to declare a variable with an example.	CO1	PO 1	<b>6</b>
		c)	Design a C program to find the largest of three numbers using ternary operator. Write an algorithm for the same.	CO3	PO3	<b>7</b>
<b>UNIT - II</b>						
	3	a)	Develop a C program to print the following pattern. 1 2 2 3 3 3 4 4 4 4	CO3	PO3	<b>6</b>
		b)	Write the general syntax of break and continue statement with suitable example.	CO1	PO 1	<b>6</b>
		c)	Develop a C program to find all the possible roots of a Quadratic equation.	CO3	PO3	<b>8</b>

<b>OR</b>					
4	a)	List out the conditional branching statements in C. Explain any two with an example.	CO1	PO 1	<b>6</b>
	b)	Differentiate between while and do-while loop with an example.	CO1	PO 1	<b>6</b>
	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	<b>8</b>
<b>UNIT - III</b>					
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	<b>10</b>
	b)	Develop a C program to multiply two m x n matrices and also write expected output.	CO3	PO3	<b>10</b>
<b>OR</b>					
6	a)	Explain the elements of a function with syntax and write a program to swap two values.	CO1	PO 1	<b>10</b>
	b)	Develop a C program to search for an element in an array using Binary search technique. Write the expected output.	CO3	PO3	<b>10</b>
<b>UNIT - IV</b>					
7	a)	Write functions to implement String operations such as concatenation and String length without using built-in functions.	CO1	PO 1	<b>10</b>
	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	<b>10</b>
<b>OR</b>					
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	<b>10</b>
	b)	Discuss any four string manipulation functions with programming example.	CO1	PO 1	<b>10</b>
<b>UNIT - V</b>					
9	a)	Analyze and predict the output of the following code.  <pre>#include &lt;stdio.h&gt; int main () {     int *ptr;     int x ;     ptr = &amp;x;</pre>	CO2	PO 2	<b>4</b>

		<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	<b>8</b>
	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	<b>8</b>
<b>OR</b>					
10	a)	Illustrate the use of the following file processing functions with an example. i) fgets()ii) fprintf()	CO1	PO 1	<b>4</b>
	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	<b>8</b>
	c)	Write a program to swap the contents of two integer variables using pointers.	CO3	PO3	<b>8</b>

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