

	CAMBRIDGE INSTITUTE OF TECHNOLOGY K.R. Puram Bengaluru - 36 CS	
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Problem Solving using C

QUESTION BANK

Course objective is to:

- To familiarize students with writing of algorithms, fundamentals of C and problem solving.
- Enable students to implement different programming constructs and decomposition of problems into functions.
- Train students to use data structures like arrays, strings, structures and pointers to obtain solutions.

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1	Write an Algorithm, Flow-chart, Pseudocode and Program for the following. (RBT-Level 2) <ul style="list-style-type: none"> • Sum of 2 numbers • Area of a circle • Calculation of simple interest : $\text{ptr}/100$ • Swap 2 numbers • Swap 2 numbers without using temporary variable • Convert temperature in degree Celsius to Fahrenheit • Area of triangle • Size of int, float, double and char variables
2	Explain creating and running a C Program
4	Describe the three tools that a programmer may use to develop a program solution.
6	Explain the basic structure of C program with an example.
7	Explain Identifiers along with its rules.
8	What is a data type? Explain the different primitive data types supported by C language, giving an example to each
9	Explain how variables are used in a program? Also, Explain its declaration and initialization statement with example.
11	Explain coding constants in C language with an example.
12	Explain formatted input and output function with a neat diagram
14	What is an Operator? Explain the following operators with an example program for each: i) Arithmetic ii) Relational iii) Logical iv) Assignment

15	Explain the following operators with an example program for each. i) Increment and Decrement ii) Conditional iii) Bitwise iv) Special
16	What is Type Conversion in C? Explain their types with a suitable examples.
17	What is the difference between a while and a do-while loop?
18	Explain the different categories of functions, providing an example for each.
19	Construct a C program to demonstrate the concept of Armstrong Numbers, using loops and arithmetic operators for digit extraction and comparison.
20	Write a C program to create a one-dimensional array, store the elements dynamically and display its elements.
21	Explain the following with syntax and example program: i) if-else ii) else if iii) switch
22	Explain the elements of user defined function with an example.
23	Construct a C program to demonstrate the concept of Neon Numbers, using loops and arithmetic operators for digit extraction and comparison.
24	Explain initialization and declaration of 1D array with an example.
25	Apply linear search to find an element in a one-dimensional array.
	Show the evaluation of the following C expressions. <ul style="list-style-type: none"> If $a=3, d=7, e=2, c=5, b=4, x = --a*d/e-c++ * b$, find a, b, c, d, e, x. If $x=20, y=5$, find the value of the expression $x = 10+15 \&\& y < 10$ If $a=9, b=12, c=3$, find the value of the expression $a-b/3+c*2-1$ $10! = 10 \parallel 5 < 4 \&\& 8$
26	Develop a C program to perform calculator operations.
27	Write a C program to display the roots of a quadratic equations.
28	Design and develop a C program to generate the electricity bill for an electricity board