

# CBCS SCHEME



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21PSP13/23

## First/Second Semester B.E./B.Tech. Degree Examination, June/July 2024 Problem Solving Through Programming

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. What is a Computer? Explain various types of computers. (10 Marks)
- b. Explain basic structure of C program along with a program to find area of a circle. (10 Marks)

OR

- 2 a. With a neat diagram, explain architecture of computer. (10 Marks)
- b. What is a token? List all types of tokens used in C programming language with an example for each. And also explain how to use below listed six operators with an example for each  
i) !    ii) size of    iii) ++    iv) ,    v) ^    vi) >> = (10 Marks)

### Module-2

- 3 a. List all branching statements used in C programming language. Explain any three two-way selection statements with an example for each. Also write their syntax and flowchart. (10 Marks)
- b. Develop an algorithm, flowchart and also write C program for  
i) To swap values of two variables without using third variable.  
ii) To compute simple interest. (10 Marks)

OR

- 4 a. With syntax, flowchart explain switch statement? Write a C program to simulate simple calculator. (10 Marks)
- b. Explain formatted output function used in C with its control string specifications:  
i) Write printf statement to display "VTU\ Belagavi"  
ii) Write printf statement to display +0.45.234 using appropriate control string.  
iii) Write printf statement to display Oxabba using appropriate control string. (10 Marks)

### Module-3

- 5 a. Define an array. Explain the declaration and initialization of single dimensional array with examples. (10 Marks)
- b. Explain any five string manipulation functions available in string.h with an example for each. (10 Marks)

OR

- 6 a. What is Two-dimensional array? Explain its declaration and initialization with example. (10 Marks)
- b. What is a string? Give its declaration with examples. Explain unformatted string input and output function with an example for each. (10 Marks)

**Module-4**

- 7 a. Explain elements of function definition, with an example. (10 Marks)  
b. What is user defined function and library function? What is call-by-value method? Implement a C program to add two numbers using call-by-value-method. (10 Marks)

**OR**

- 8 a. What is function? Explain classification of user defined function based on parameter passing and return value with an example for each. (10 Marks)  
b. Highlight the differences between call-by-value and call-by-reference methods. Implement a C program to generate Fibonacci series of N numbers using recursion. (10 Marks)

**Module-5**

- 9 a. What are storage classes in C programming? Explain their lifetime, scope, initial value and storage space. Also explain use of auto and register storage classes. (10 Marks)  
b. Implement structure to read, write, compute average marks of n students. Display the names of students whose average is below 50 and above 50 marks. (10 Marks)

**OR**

- 10 a. What are preprocessor directives? Explain various types of preprocessor directives with example for each. (10 Marks)  
b. What is pointer? Develop a program using pointers to compute the sum, mean and standard deviation of all elements stored in an array of N real number. (10 Marks)

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