



# CBCS SCHEME

21PSP13/23

## First/Second Semester B.E. Degree Examination, June/July 2023 Problems 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. Define computer. Explain the generations of computer. (08 Marks)
- b. Differentiate between primary memory and secondary memory. (04 Marks)
- c. Define operator. Explain any 06 operators with suitable example. (08 Marks)

OR

- 2 a. Define network Topology. List and explain the different types of network Topology. (06 Marks)
- b. Convert the following mathematical expression into 'C' equivalent statement:
  - (i)  $m = \frac{1}{(x^2 + y^2)}$
  - (ii)  $n = \sqrt{b^2 - 4ac}$  (04 Marks)
- c. Write the basic structure of 'C' program. Explain each sections briefly with suitable example. (10 Marks)

### Module-2

- 3 a. With examples how would describe the formatted input and formatted output statements in C language. (08 Marks)
- b. What are different types of conditional statements? Explain if, if-else and nested if with syntax and examples. (08 Marks)
- c. Evaluate :  

```
i = 1 ;  
L : if (i > 2)  
{  
    printf("Saturday");  
    i = i + 1 ;  
    goto < ;  
}  
printf("Sunday");
```

  
Explain your result briefly. (04 Marks)

OR

- 4 a. How the while loop differs from do-while loop? (06 Marks)
- b. Write a 'C' program to check whether a given integer is palindrome or not. (06 Marks)
- c. Write a C program to plot Pascal's triangle. (08 Marks)

**Module-3**

- 5 a. What is an array? Write syntax for declaring two dimensional array and initialize the same with suitable example. (08 Marks)
- b. Write a C program to find transpose of a given matrix. (06 Marks)
- c. List the difference between linear and binary search. (06 Marks)

OR

- 6 a. Define string. List out all string manipulation function. Explain any two with examples. (10 Marks)
- b. Write a C program to copy a string (combination of digits and alphabets) to another string (only alphabets). (10 Marks)

**Module-4**

- 7 a. Write a C program for evaluating the binomial coefficient using a function Factorial (n). (10 Marks)
- b. Define the following : (04 Marks)
- (i) Actual parameter.
  - (ii) Formal parameter.
  - (iii) Global variable.
  - (iv) Local variable. (04 Marks)
- c. Write a C program to generate Fibonacci series using recursive function. (06 Marks)

OR

- 8 a. Define a function. List and explain the categories of user defined functions. (10 Marks)
- b. Differentiate (i) User defined and built-in function (ii) Recursion and iteration. (10 Marks)

**Module-5**

- 9 a. What is a structure? Explain the syntax of structure declaration in C with example. (04 Marks)
- b. Write a C program that accepts a structure variable as a parameter to a function from a function call. (10 Marks)
- c. Define a pointer. How the pointers are declared and initialized. (06 Marks)

OR

- 10 a. Differentiate between structures and unions. (04 Marks)
- b. What is preprocessor directive? Explain #define and #include preprocessor directive. (06 Marks)
- c. Write a C program to find sum and mean of all elements in an array using pointer. (10 Marks)

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