

# CBCS SCHEME

18CPS13/23



## First/Second Semester B.E. Degree Examination, Aug./Sept.2020 C – Programming for Problem Solving

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. List the input devices of computer and explain any two input devices. (06 Marks)
- c. Define Algorithm. Write an algorithm to find the area and perimeter of a rectangle. (06 Marks)

OR

- 2 a. Explain the basic structure of C program, with an example. (08 Marks)
- b. What is an Operator? List and explain any 4 types of operator. (08 Marks)
- c. Evaluate the following expressions :
  - i)  $100\% 20 \leq 20 - 5 + 100\% 10 - 20 == 5 > = 1! = 20.$
  - ii)  $a + = b * = c - = 5$ , where  $a = 3$ ,  $b = 5$  and  $c = 8$ . (04 Marks)

### Module-2

- 3 a. Explain formatted input output functions in C with examples. (06 Marks)
- b. What are different types of conditional statements? Explain if, if else and nested if with syntax and examples. (08 Marks)
- c. Write a C program to find the sum of natural numbers from 1 to N using while loop. (06 Marks)

OR

- 4 a. List the differences between while and do – while loop along with syntax and example. (06 Marks)
- b. Write a C program to find all possible roots of quadratic equation and print them with appropriate messages. (08 Marks)
- c. Explain break and continue statements with example. (06 Marks)

### Module-3

- 5 a. What is an array? Write syntax for declaring two dimensional array and initialize the same with suitable examples. (08 Marks)
- b. Write a C program to find biggest of n numbers using arrays. (06 Marks)
- c. List the differences between Linear and binary search. (06 Marks)

OR

- 6 a. Explain any 4 string manipulation library functions with examples. (08 Marks)
- b. Write a C program to find transpose of a given matrix. (06 Marks)
- c. Write an algorithm for linear search. (06 Marks)

### Module-4

- 7 a. Define Function. What are the advantages of user defined functions? (06 Marks)
- b. Explain types of functions based on parameters. (08 Marks)
- c. Define Recursion. Write a C program to find factorial of a number using recursion. (06 Marks)

OR

- 8 a. Define the following :
- i) Actual parameter
  - ii) Formal parameter
  - iii) Global variable
  - iv) Local variable. (06 Marks)
- b. Write a C function isprime (num) that accepts an integer argument and returns 1 if the argument is prime, 0 otherwise. Write a C program that invokes this function to generate prime numbers between given range. (08 Marks)
- c. Write a C program to generate Fibonacci series using recursive function. (06 Marks)

**Module-5**

- 9 a. What is a Structure? Explain structure with syntax and example. (08 Marks)
- b. Differentiate between Structures and Unions. (04 Marks)
- c. Write a C program to maintain record of n students using structures with 4 fields (Rollno, marks, name and grade). Print the names of students with marks  $\geq 70$ . (08 Marks)

OR

- 10 a. What is a Pointer? Explain how pointer variable is declared and initialized. (06 Marks)
- b. What is Preprocessor directive? Explain #define and #include preprocessor directive. (06 Marks)
- c. Explain call by value and call by reference with functions. (08 Marks)

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