

# CBCS SCHEME

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15PCD13/23

## First/Second Semester B.E. Degree Examination, Jan./Feb. 2021 Programming in C and Data Structures

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. Explain the structure of C program with an example. (06 Marks)
- b. What is type conversion? Explain the two types of type conversions with examples. (06 Marks)
- c. What is pseudocode? Explain with examples. (04 Marks)

OR

- 2 a. Explain the different data types supported in C language with example. (08 Marks)
- b. List and explain the different types of operators in C language. (08 Marks)

### Module-2

- 3 a. Explain the syntax of switch statement with example. (06 Marks)
- b. Write a program that takes three coefficients a, b, c if a quadratic equation  $ax^2 + bx + c$  as inputs and computes all possible roots and prints them with appropriate messages. (10 Marks)

OR

- 4 a. What is a loop? Explain the different types of loops in C language with example. (10 Marks)
- b. Explain the syntax of: (i) break (ii) continue (iii) exit (06 Marks)

### Module-3

- 5 a. What is an array? Explain declaration and initialization of array with example. (06 Marks)
- b. Write a program that reads N integer numbers and arranges them in ascending order using bubble sort. (10 Marks)

OR

- 6 a. What is a function? Write a function program to find product of two numbers. (06 Marks)
- b. Explain the two different techniques of passing parameters to a function with example programs. (10 Marks)

### Module-4

- 7 a. What is structure data type? Explain. (04 Marks)
- b. Differentiate structures and unions. (06 Marks)
- c. Explain the concept of array of structure with a program. (06 Marks)

OR

- 8 a. Explain: (i) fopen( ) (ii) fclose( ) (iii) fgets( ) (iv) fputs( ) (08 Marks)
- b. Explain the advantages of structures. (04 Marks)
- c. What is a file? What are the advantages of using files? (04 Marks)

### Module-5

- 9 a. What is a pointer? Write a C program to add two numbers using pointers. (08 Marks)
- b. What is a preprocessor directive? Explain #define and #include –preprocessor directives. (08 Marks)

OR

- 10 a. What is dynamics memory allocation? Explain malloc and calloc function of dynamic memory allocation. (06 Marks)
- b. Write notes on: (i) stacks (ii) queues (10 Marks)

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Important Note : 1. On completing your answers, carefully draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.