

# CBCS Scheme

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15PCD13/23

## First/Second Semester B.E. Degree Examination, June/July 2017 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. Define Pseudo code. Explain with an example. (05 Marks)
- b. Write a C program to find biggest among three numbers using ternary operator. (05 Marks)
- c. Explain the following constants with example (06 Marks)
  - i) Integer constant
  - ii) Floating constant
  - iii) Character constant.

OR

- 2 a. List the formatted input/output functions of C language. Explain the basic structure of C program with proper syntax and example. (06 Marks)
- b. Define an algorithm. Write an algorithm to find the area of circle and triangle. (06 Marks)
- c. Evaluate the following expression/code segment (04 Marks)
  - i)  $22 + 3 < 6 \ \&\& \ 5 \parallel 22 == 7 \ \&\& \ 22 - 2 > = 5$
  - ii)  $a + 2 > b \parallel ! c \ \&\& \ a == d \parallel a - 2 < = e$where  $a = 11, b = 6, c = 0, d = 7$  and  $e = 5$

### Module-2

- 3 a. List all branching statements. Explain any two with proper syntax and example. (06 Marks)
- b. Explain switch case statement with syntax and example. (05 Marks)
- c. Write a C program to find whether given year is leap year or not. (05 Marks)

OR

- 4 a. Write the syntax of all looping control statements. Explain how break and continue statements are used in C program with example. (06 Marks)
- b. Write a C program to find the square root of a given number without using library function. (05 Marks)
- c. List the difference between while and do-while loop. (05 Marks)

### Module-3

- 5 a. Define the array. How one and two dimensional arrays are declared and initialized? Explain. (07 Marks)
- b. Write C program to evaluate the polynomial equation  $f(x) = a_0 + a_1x + a_2x^2 + \dots + a_{n-1}x^{n-1} + a_nx^n$  for given constant 'x' and its co-efficients. (04 Marks)
- c. Explain string Input/output functions with example. (05 Marks)

OR

- 6 a. Explain how strings are declared and initialized with syntax and example. (06 Marks)
- b. Write a C program to find the addition of two matrices. (04 Marks)
- c. Explain function definition, function call and function declaration with example. (06 Marks)

Module-4

- 7 a. Define structure. Explain how structure members are accessed using dot (•) operator with example. (05 Marks)
- b. Show how structure variables are passed as a parameter to a function with example. (05 Marks)
- c. Write a C program to maintain record of 'n' students detail using array of structures with four fields (Rno, name, marks, grade). Each field is an appropriate data type. Print the marks of student if student name is given. (06 Marks)

## OR

- 8 a. Define file. Explain the different modes of file with suitable examples. (08 Marks)
- b. Explain the following file function with example.
- i) fopen ( )
  - ii) fprintf ( )
  - iii) fscanf ( )
  - iv) fgets ( )
- (08 Marks)

Module-5

- 9 a. What is pointer? Explain how pointer variable is declared and initialized. (05 Marks)
- b. Explain any two preprocessor directives in C with example. (06 Marks)
- c. Write a C program to swap two numbers using pointer concept. (05 Marks)

## OR

- 10 a. What are primitive and non primitive data types? Explain. (05 Marks)
- b. List the applications of stack and Queue data structure. (05 Marks)
- c. Write a C program to find sum and mean of all elements in an array using pointer. (06 Marks)

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