

# CBCS SCHEME

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15PCD13/23

First/Second Semester B.E. Degree Examination, Dec.2018/Jan.2019

## 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. What is an operator? Explain the arithmetic, logical, and bitwise operators in C language. (08 Marks)
- b. Write a C program which takes as input p,t,r. Compute the simple interest and display the result. (08 Marks)

OR

- 2 a. What is the purpose of `printf()` statement? Explain the formatted `printf()` along with examples. (08 Marks)
- b. What is type conversion? Illustrate different ways of type conversion with an example. (08 Marks)

### Module-2

- 3 a. Write a C program to calculate area of circle, rectangle and triangle using SWITCH case. (08 Marks)
- b. What is two way selection statements? Explain nested if statement and cascaded IF-ELSE with examples. (08 Marks)

OR

- 4 a. Write a C program to find GCD of two non-zero integer numbers. If the first number is less than the second number, then the program must exchange the two numbers before computing GCD. (08 Marks)
- b. Illustrate with an example break and continue statements. (03 Marks)
- c. Compare while loop and do-while loop with syntax, flowchart and examples. (05 Marks)

### Module-3

- 5 a. Define an array. Explain declaration and initialization of one dimensional array with an example. (08 Marks)
- b. Write a C program to accept an alphanumeric (Eg : "ABC123DEFR") string, to count the number of characters and digits. Also display the result. (08 Marks)

OR

- 6 a. Explain any four string manipulation functions with examples. (08 Marks)
- b. Write a C program to check a number is a prime number or not. (04 Marks)
- c. What is function? Write a C program to find square of a number using function. (04 Marks)

**Module-4**

- 7 a. Write a C program to create a structure using typedef and input the following details of 'N' students (USN : String Name : String Average : float grade : char). Print the names of students with their average is  $\geq 60\%$ . (10 Marks)
- b. Differentiate between structure and union with examples. (06 Marks)

**OR**

- 8 a. Explain how the structure variable passed as a parameter to a function with example. (06 Marks)
- b. Explain the following file operations along with syntax and examples :  
i) fopen() ii) fclose() iii) fscan() iv) fprintf() v) fgets(). (10 Marks)

**Module-5**

- 9 a. List out various memory allocation and de-allocation mechanisms available in C? Write a C program to demonstrate them. (08 Marks)
- b. Discuss any two preprocessor directives in 'C'. (03 Marks)
- c. Define pointer. What are the operators used by pointer with an example. List the advantages and disadvantages of pointer. (05 Marks)

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**OR**

- 10 a. Describe the two ways of passing parameters to function with examples. (08 Marks)
- b. Define stack. Explain the primitive operations on the stack. Write a C program to demonstrate it. (08 Marks)

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