

CBCS Scheme

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ISRCED13

First Semester B.E. Degree Examination, Dec.2015/Jan.2016
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 variable? Explain the rules for variables in C language. Give examples for valid and invalid variables. (06 Marks)
- b. Evaluate the following expressions:
 i) $100\% 20 < 20 = 5 + 1008h$ $10 * 20 \div 5 > 1$
 ii) $a \div b * c = 5$ where $a \div 3$, $b \div 5$ and $c \div 8$. (04 Marks)
- c. Write a C program to find the area and perimeter of a rectangle. (06 Marks)

OR

- 2a. Write a C program which takes as input p, r, t. Compute the simple interest and display the result. (06 Marks)
- b. Convert the following mathematical expressions into C expressions:
 i) $\frac{x}{b+c} + \frac{y}{b-c}$ ii) $a + \frac{b(ad+e)}{b-a}$ (04 Marks)
- c. What is value of "x" in following code segments? Justify your answer's:
 i) `inta, b;`
 `float x;`
 `a=4;`
 `b=5;`
 `x=bla;`
 ii) `int a, b;`
 `float x;`
 `a=4;`
 `b=5;`
 `x = (float) b/a;` (05 Marks)

Module-2

- 3 a. Explain the syntax of do-while statement. Write a C program to find the factorial of a number using do-while, where the number n is entered by user. (08 Marks)
- b. What is two-way selection statement? Explain if, if else, and cascaded if-else with examples. (08 Marks)

OR

- 4 a. Write a C program that takes from user an arithmetic operator ('+', '-', '*', or '/') and two operands. Perform the corresponding arithmetic operation on the operands using switch statement. (08 Marks)
- b. What is an array? How to declare and initialize the two dimensional array? (08 Marks)

Module-3

- 5 a. What is a function? Write a C program to find the cube of a number using function. (05 Marks)
- b. Write a C program to check a number is a prime or not using recursion. (05 Marks)
- c. Write a program to replace each constant in a string with the next one except letter 'z' 'Z' and 'a' 'A'. Thus the string "programming in C is fun" should be modified as "qpsphannjoh jo D jt gvo". (06 Marks)

OR OR

- 6 a. Write a C program to sort the elements by passing array as function argument. (08 Marks)
 b. Write a C program to concatenate two strings without using built function strcat(). (08 Marks)

Module-4

- 7 a. What is structure? Explain the syntax of structure declaration with example. (05 Marks)
 b. Write a C program to pass structure variable as function argument. (07 Marks)
 c. Explain fopen() and fclose() functions. (04 Marks)

OR OR

- 8 a. Write a C program to store and print name, USN, Subject and Marks of students using structure. (08 Marks)
 b. Explain fputc(), fgetc(), fputs(), fgets() and fputs() functions with syntax. (08 Marks)

Module-5

- 9 a. What is a pointer? Write a C program to find the sum and mean of all elements in an array using pointer. (08 Marks)
 b. What is stack? Explain its operations with examples. (08 Marks)

OR. OR

- 10 a. Write a C program to swap two numbers using call by address. (06 Marks)
 b. Explain any five preprocessor directives in C. (05 Marks)
 c. What are primitive and non-primitive data types? Explain with examples. (05 Marks)
