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# First/Second Semester B.E. Degree Examination, June/July 2018
# Programming in C and Data Structures

Time: 3 hrs.

Max. Marks:100

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

## Module – 1

1   a. Explain basic concepts of C program. **(08 Marks)**
    b. Define variable. Give example. List out any four rules to be followed while using a variable. **(06 Marks)**
    c. Write a C program to swap the contents of two variables. **(06 Marks)**

2   a. Explain relational operators in C with example. **(08 Marks)**
    b. Define Pseudocode. What is its purpose? Write pseudocode to display numbers from 1 to 10 along with their squares. **(06 Marks)**
    c. What would be the value of 'a' after the execution of the following expressions:
       (i)  a+ = (a++) + (++a)      (ii)  a = (– – a ) – (a – –) **(06 Marks)**

## Module – 2

3   a. Explain single selection and two way selection in C language along with syntax. **(08 Marks)**
    b. What is purpose of switch statement? Explain with syntax. **(04 Marks)**
    c. Write a C program to simulate the working of a calculator with addition, subtraction, multiplication and division. Use switch. **(08 Marks)**

4   a. How do you perform looping in C? Give the syntax of loop constructs. **(08 Marks)**
    b. Explain the following statements supported in C – break, continue, goto. **(06 Marks)**
    c. Write a C program to find the sum of individual digits of the given number. **(06 Marks)**

## Module – 3

5   a. Define array. List four properties of an array. Explain declaration of single dimensional array with example. **(08 Marks)**
    b. Explain call by value and call by reference with example. **(06 Marks)**
    c. Write a program to accept a string and check whether it is palindrome or not. **(06 Marks)**

6   a. Explain function declaration, function definition and function call. **(06 Marks)**
    b. Explain any four string library functions with example. **(08 Marks)**
    c. Write a recursive program to find factorial of a number. **(06 Marks)**

## Module – 4

7   a. What is a structure? Give its syntax. How to declare a structure? **(06 Marks)**
    b. Using structures with a C program that takes book ID, Author name, Publisher name and price for a book as input and prints the same information as output. **(08 Marks)**
    c. What is a text file? What are various steps to be performed when we do file manipulations? **(06 Marks)**

8  a. Write a program to open a file in read only mode. **(08 Marks)**
   b. Explain array of structures with example. **(06 Marks)**
   c. What is the use of fscanf ( ) and fprintf ( ) function? Explain with syntax. **(06 Marks)**

### Module – 5

9  a. What are preprocessor directives and symbolic constants? Write a program to show the usage of symbolic constant. **(08 Marks)**
   b. List out any four advantages of preprocessor. **(04 Marks)**
   c. What is dynamic memory allocation? Write and explain different dynamic memory allocation in C. **(08 Marks)**

10 a. Write a C program to compare two strings using pointers. **(08 Marks)**
   b. Define Stack and Queue. Outline their applications. **(06 Marks)**
   c. Explain any two preprocessor directives with example. **(06 Marks)**

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