

2014  
B.E. (Bio-Technology) Second Semester  
ESC-X01: Programming for Problem Solving  
(Bio-tech and EEE)

Time allowed: 3 Hours

Max. Marks: 50

**NOTE:** Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Section.

x-x-x

- I. Write short answers of the following:
- What are command-line arguments?
  - What are self-referential structures? Give an example.
  - Differentiate between iteration and recursion.
  - What are enums? What is their use?
  - What are the advantages of modularizing a C program into functions? (5×2=10)

**Section-A**

- II.
  - What is data type? Describe in brief various data types available in C language.
  - Describe in detail various storage classes available in C language. (5,5)
- III.
  - Write a C program to print first  $n$  terms of Fibonacci series. Get the value of  $n$  from the user. Fibonacci series is as follows: 0 1 1 2 3 5 8 13 21 ....
  - What do you mean by type conversion? What is implicit and explicit type conversion? Give example of an expression with operands of mixed types and explain how type conversion is applied during the evaluation of the expression. (5,5)
- IV.
  - Write a C program that makes use of continue statement and prints first  $n$  whole numbers that are divisible by 3. Take the value of  $n$  from the user.
  - Describe in detail selection sort algorithm. (5,5)

**Section-B**

- V.
  - What are the different ways to pass parameters to a function. Describe by giving examples.
  - What are structures? How are they different from unions? With the help of an example, describe how is structure declared, defined and used. (5,5)
- VI.
  - Describe the role of functions malloc, calloc, realloc and free. Give function prototype of each of them.
  - What are macros? How are they defined and called? How are they different from functions? (5,5)
- VII.
  - Write a C program to count the number of characters in a file. Take the name of the file using command line arguments.
  - Write a recursive C program to find the sum of the elements of an array. (5,5)

x-x-x