

Exam.Code:0905  
Sub. Code: 33251

2125  
B.E., First Semester  
ESC-X01: Programming Fundamentals  
(Common with CSE, IT, ECE, 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:

- a. What is difference between compiler and interpreter?
- b. What is flowchart? Draw and name various symbols used in flowcharts.
- c. What is data type? List various data types available in C language.
- d. What is a self-referential structure? Give example.
- e. What are macros? How are they different from functions?

(5×2=10)

**Section-A**

II.

- a. Define algorithm. Write an algorithm to check whether a given number is prime or not.
- b. Describe in brief the functions of operating system, editor, compiler, linker and loader.

(5,5)

III.

- a. What are logical operators? Why do we require them? List various logical operators available in C language.
- b. Define expression. With the help of an example, describe the role that precedence and associativity rules play in the evaluation of an expression.

(5,5)

IV.

- a. Write a C program to search a given element in a given one-dimensional array of elements.
- b. What are multi-dimensional arrays? With the help of an example, explain the representation of multi-dimensional arrays in memory.

(5,5)

**Section-B**

V.

- a. What are functions? Describe in detail the advantage of modularizing C program into functions.
- b. Differentiate between call-by-value and call-by-reference methods of passing parameters to a function.

(5,5)

VI.

- a. Write a C program that makes use of a recursive function to find sum of digits of a number. For example, for a given number 234, the program should output 9.
- b. What is union? How is it different from structure? With the help of an example, describe how is union declared, defined and used.

(5,5)

VII.

- a. What do you mean by dynamic memory allocation? Describe in brief the purpose of malloc, calloc, realloc and free functions.
- b. Write a C program to copy the content of one file to another. Take the names of source and target file using command-line arguments.

(5,5)

*x-x-x*