Exam.Code:0905
Sub. Code: 33251

2076

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 Unit.

x-x-x

1. Answer the following:-
   a) State the role of compiler, interpreter and assembler.
   b) Discuss the memory allocation for 2D array elements and structure components.
   c) What is the time complexity of bubble sort and selection sort algorithms?
   d) What is the role of macros? Write a short note on command-line arguments.
   e) What is the difference between text files and binary files? (5x2)

UNIT - I

2. a) Explain various storage class specifiers and their effect on variable scope, lifetime, and visibility.
   b) Write a program to print the first n terms of a Fibonacci series. (2x5)

3. a) Using Insertion Sort, sort the following numbers in ascending order and show each step:

      89, 34, 12, 78, 56, 23

   b) Write syntax to create 3D array. Write a program to add the diagonal elements of an array. (2x5)

4. a) Compare if-else-if ladder and switch statements. Write a small program to calculate the sum of first 10 natural numbers using a while and for loop.
   b) Discuss the various data types supported by C language. (6,4)

UNIT - II

5. a) Explain the effect of call by value and call by reference on variable values after function execution by taking a suitable example.
   b) Compare structures and unions in terms of memory usage. (6,4)

P.T.O.

6. Write a C program to store employee information (ID, name, salary) using structures and use this structure to implement 10 employee records. Explain unions and bit fields. (6+4)

7. Write note on the following:-
   a) Any three file handling operations
   b) Dynamic memory allocation
   c) Pointers & Operations
   d) Manipulators (4x2½)

x-x-x