

First/Second Semester B.E. Degree Examination, July/August 2022
Problem Solving Through Programming

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Discuss various generations of computers, highlighting features of each one. (10 Marks)
b. With the basic structure of a C program and explain with an example. (10 Marks)

OR

- 2 a. Differentiate primary memory and secondary memory. (05 Marks)
b. List and explain logical operators and analyze the following code and write the output with proper reasoning.
#include <stdio.h>
void main()
{
printf("7 && 0 = % d\n", 7 && 0);
printf("7 || 0 = % d\n", 7 || 0);
printf("!0 = %d", !0);
}
c. Discuss basic data types supported in 'C'. (10 Marks)
(05 Marks)

Module-2

- 3 a. Write a C program to find roots of a quadratic equation. (10 Marks)
b. Write the syntax of switch statement and explain with a suitable example. (10 Marks)

OR

- 4 a. Write the syntax of while and do-while statements. Also, list differences between them with example. (06 Marks)
b. Write a C program to print whether a given integer number is palindrome or not. (07 Marks)
c. Discuss break and continue statements with suitable examples. (07 Marks)

Module-3

- 5 a. Define arrays and discuss various ways of initializing 1D array with examples. (10 Marks)
b. Write a C program to sort given integers in ascending order and using selection sort and trace by taking 5 integers. (10 Marks)

OR

- 6 a. Define strings and explain how they are declared and initialized. (06 Marks)
b. Write a C program to search for a given number in an array using binary search technique. (08 Marks)
c. Explain any 6 string manipulation functions with example. (06 Marks)

Module-4

- 7 a. What is a user defined function? Discuss different categories of user defined functions with appropriate example for each. (10 Marks)
b. Write a recursive function to find factorial of a number. (06 Marks)
c. Discuss storage class specifiers. (04 Marks)

OR

- 8 a. Define recursion. Write a recursive program to find n^{th} Fibonacci number. (08 Marks)
b. Write a program to find GCD and LCM of 2 numbers. (08 Marks)
c. What are the advantages of writing user defined functions? (04 Marks)

Module-5

- 9 a. Differentiate structures and unions with syntax and example. (06 Marks)
b. Write a C program to swap 2 numbers and use the same to explain advantage of call by reference method over call by value method. (09 Marks)
c. List any 5 preprocessor directives in C. (05 Marks)

OR

- 10 a. Write a C program to add 2 complex numbers using structures. (06 Marks)
b. Write a C program to compute sum, mean and standard deviation of all elements stored in an array using pointers. (10 Marks)
c. What are pointers? Discuss pointer arithmetic with examples. (04 Marks)
