



SEMESTER END EXAMINATIONS - MAY 2023

Program	: B.E. - Common to all Programs	Semester	: I
Course Name	: Introduction to C Programming	Max. Marks	: 100
Course Code	: ESC135	Duration	: 3 Hrs

Instructions to the Candidates:

- Answer one full question from each unit.

UNIT - I

- Differentiate between variable and a constant. Discuss the rules to be followed while declaring a valid variable. CO1 (06)
 - Determine the output of the following code snippet. CO1 (08)

```
int main()
{
    printf(":%s:\n", "Welcome to MSRIT!");
    printf(":%25s:\n", "Welcome to MSRIT!");
    printf(":%.10s:\n", "Welcome to MSRIT!");
    printf(":%-10s:\n", "Welcome to MSRIT!");
    printf(":%-20s:\n", "Welcome to MSRIT!");
    printf(":%.15s:\n", "Welcome to MSRIT!");
    printf(":%15.10s:\n", "Welcome to MSRIT!");
    printf(":%-15.10s:\n", "Welcome to MSRIT!");
    return 0;
}
```
- Write a program to calculate the salary of an employee, given his basic pay (to be entered by user), HRA = 10% of the basic pay, TA = 5% of basic pay. CO1 (06)
Define HRA and TA as symbolic constants and calculate the salary of the employee. [Salary = Basic Pay + HRA + TA].
 - What do you mean by a data type? List and discuss any four data types supported in C language. CO1 (06)
 - Explain various logical, relational and arithmetic operators with example. CO1 (08)
 - Write a program to identify whether the given character is an alphabet, digit, whitespace or punctuation using 'simple if'. CO1 (06)

UNIT - II

- Write a C program to generate even and odd numbers within a given range. (Using for loop). CO2 (06)
 - Give a syntax for If-else-If statement. Write a program for the same. CO2 (08)
 - Define with an example: i) nested Loops ii) Dangling Else problem. CO2 (06)

4. a) Write a C program to find whether the given triangle is equilateral, isosceles or scalene. CO2 (06)
b) Draw the flowchart and syntax of the switch statement. CO2 (06)
c) How many types of iterative statements are there? List and explain any two in detail with an example. CO2 (08)

UNIT - III

5. a) With appropriate examples explain compile and runtime initialization of one dimensional arrays. CO3 (06)
b) Write a C program using functions to swap two integer values using call by reference. CO3 (07)
c) Write a C program to read a number. Find whether it is a prime number or not using functions. CO3 (07)
6. a) Explain with an example the two ways in which arguments /parameters can be passed to the called function. CO3 (06)
b) Write a C program to find the factorial of a given number using recursion. CO3 (07)
c) Write a C program to print the square and cube of index and element of 1-D array. CO3 (07)

UNIT- IV

7. a) Write a C program to print the sum of the diagonal elements in a given matrix. CO4 (08)
b) Given a sorted array `array_1[]` of `n` elements, write a program to search for a given elements. CO4 (06)
c) What is an array? Explain the compile and runtime initialization of a 2-D array. CO4 (06)
8. a) Write a C program to find the transpose of a given matrix. CO4 (06)
b) Write a C program to pass an array to a function that returns the minimum element in the given array. CO4 (08)
c) Write a C program to read and print a 3 x 3 matrix. CO4 (06)

UNIT - V

9. a) Write a C program to concatenate two given strings without using built-in function. CO5 (06)
b) Write a C program using array of structures to read and print the name, register number, three subject marks and average of those three subjects of 5 students. CO5 (10)
c) Define Pointers. List the benefits of pointers. CO5 (04)
10. a) Write a C program to reverse the given string without using the built-in function. CO5 (06)
b) Compare structure and arrays. Discuss how to declare & initialize the members of structures with suitable examples. CO5 (06)
c) Explain with syntax and example, any four built-in string handling functions. CO5 (08)
