

**POST GRADUATE DIPLOMA IN
COMPUTER APPLICATIONS
(PGDCA-NEW)**

Term-End Examination

June, 2023

MCS-201 : PROGRAMMING IN C AND PYTHON

Time : 3 Hours

Maximum Marks : 100

Weightage : 70%

Note : *Question No. 1 is compulsory. Attempt any three questions from the rest.*

1. (a) Differentiate between syntax errors and semantic errors. Give suitable example for each in a C program. 5
- (b) Write a C program to print the size of basic data types i. e. int, char, float and double, in an appropriate format. Support your program with suitable comments. 5

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- (c) What are ternary operators ? Discuss the syntax of ternary operators. Give the output of the following code : 5

```
main ()  
{ int a = 10, b = 15, x;  
  x = ( a < b ) ? ++ a : ++ b;  
  printf ("x = %d a = %d b = %d\n", x, a, b);  
}
```
- (d) Compare structure and a union in C. Give suitable example code for each. 5
- (e) What is IronPython ? Discuss the structure of Python program with the help of a block diagram. 5
- (f) Briefly discuss the Dictionary and set data types in Python. Give syntax for creation of Dictionary and set in Python. 5
- (g) Differentiate between method overloading and method overriding. Give suitable example code in Python for each. 5
- (h) What are iterators ? How do iterators differ from iterables ? Give example of each. 5

2. (a) What is the function of connect() method of MySQL.Connector Interface ? Name the arguments involved with connect() method. Write Python code to create database Emp_DB and to connect to Emp_DB. (make assumptions wherever necessary).
10
- (b) What are modules in Python ? Create a module Arithmetic_op.py to perform addition, subtraction, multiplication and division operation on two numbers. Import this module and use the functions defined, to perform said operations and print their results.
10
3. (a) Write Python code to perform the following :
10
- (i) Copy a file first.txt to second.txt
(ii) Reading a file using with statement
(iii) Writing a file using with statement
(iv) Appending a file using with statement
- (b) Write Python program to find factorial of a number, and use this program to print the exponential series by writing another program in Python :
10

$$\text{Note : } e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots + \frac{x^n}{n!}$$

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4. (a) Write a program in C, to count vowels, commas and fullstops (i. e. periods) in a text entered by the user. Support your program with suitable comments. 10
- (b) What are preprocessors in C ? Briefly discuss the use of # define to define macros. Write a C program that contains the macro "area" which represents the expression, "length * width", use this macro to find area of the geometry whose length and width are given by user. 10
5. (a) Write a program in C, to take input of two 3×3 matrices and perform the addition operation. Support your program with suitable comments. 10
- (b) Write short notes on the following : 10
- (i) Linker Errors
(ii) Break and Continue statement
(iii) malloc()
(iv) calloc()

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