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MCS–201

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

Term-End Examination

December, 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) Draw flow chart and write algorithm to print Fibonacci series upto the number of terms entered by the user. 5
- (b) Write recursive and iterative program in C, to find factorial of a number entered by the user. 6

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- (c) Compare Break and Continue statement, illustrate the use of both statements through a suitable code in python. 6
- (d) How do Mutable data types differ from Immutable data types ? Briefly discuss the syntax and utility of the following data types in python : 5
- (i) Lists
 - (ii) Tuples
 - (iii) Dictionaries
- (e) Explain the concept of call by reference, with suitable code in C. Compare it with call by value mechanism. 6
- (f) Compare the terms Typedef and Typecast in C. Give suitable code for each. Also discuss utility of both. 6
- (g) What are Co-routines ? Explain, how the co-routines support cooperative multitasking in Python. 6
2. (a) Differentiate between Structure and Union constructs in C. Write suitable code for each. 7
- (b) Differentiate between syntax error and semantic error. Give example for each. 5

(c) Discuss the following terms in context of python. (Give example for each) : 8

(i) Framework

(ii) Library

(iii) Package

(iv) Module

Also, give relation between them.

3. (a) Discuss the relation between arrays and pointers. Give suitable example in support of your discussion. 5

(b) What is Jython ? How does Jython work ? 5

(c) Compare Global variables with Local variables. Give suitable example for each. 5

(d) What are iterators ? How do iterators differ from iterables ? Give example for each. 5

4. (a) Compare Buffered I/O with Unbuffered I/O in C. 5

(b) Write a program in C to generate the following pattern : 5

```

*
* *
* * *
* * * *

```

- (c) Discuss the function of `connect()` method of MySQL. Connection interface in Python. List the arguments involved in the `connect()` method. Write a python code to create database `Employee_DB` and prepare connection to `Employee_DB`. (Make suitable assumptions wherever necessary). 10
5. (a) What are Generators in Python ? Compare Generators and Lists. Also, discuss the utility of Generators in Python. 5
- (b) In C, how `&&` operator differs from `&` operator ? Support your comparison with suitable code in C. 5
- (c) Write short notes on the following (give utility of each) : 10
- (i) Storage classes in C
 - (ii) Decorators in Python
 - (iii) Cursor objects
 - (iv) Functions and its types