

No. of Printed Pages : 4

**MCS-201**

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

**Term-End Examination**

**December, 2022**

**MCS-201 : PROGRAMMING IN C AND PYTHON**

*Time : 3 Hours*

*Maximum Marks : 100*

*Weightage : 70%*

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

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1. (a) Draw flowchart and write algorithm to print Fibonacci series upto the number of terms entered by the user. 5
- (b) Differentiate between the structure and union construct in C. Write suitable code for each. 5
- (c) Compare the term typedef and typecast in C. Give suitable code for each. Also discuss utility of both. 5

**P. T. O.**

- (d) Write a program in C to verify that the string entered by the user is palindrome or not. Support your program with suitable comments. 5
- (e) What is Jython ? How does Jython work ? Compare module and package in context of Python. 5
- (f) What are generators in Python ? Compare generators and lists. Also discuss utility of generators in Python. 5
- (g) What are iterators in Python ? How do iterators differ from iterables ? Give example of each. 5
- (h) What are co-routines ? How do co-routines support cooperative multitasking in Python ? 5
2. (a) Write an algorithm to find the slope of a line segment whose end point coordinates are  $(x_1, y_1)$  and  $(x_2, y_2)$ . The algorithm gives output whether the slope is positive, negative or zero. Transform your algorithm into C program. 10

**Note :** Slope of line segment =  $(y_2 - y_1) / (x_2 - x_1)$ .

- (b) What are Pandas ? Write steps to import, read and print a CSV file using Pandas. Also, transform your steps in to suitable code in Python. 10
3. (a) Write short notes on the following : 10
- (i) Looping constructs and its types in C
  - (ii) Functions and its types in C
- Give suitable example for each.
- (b) Discuss the connect( ) method of MySQL Connector interface. List the arguments involved with connect( ) method. Write Python code to create database student\_DB and to connect to student\_DB (make suitable assumptions wherever necessary). 10
4. (a) Write a program in C to calculate the product of two matrices. Support your code with suitable comments. 10
- (b) What are lists ? How do lists differ from arrays ? What do you understand by the term “Lists are mutable but tuples are immutable” ? Write syntax for creation of list and accessing the last element of the list. 10

5. (a) Briefly discuss the concept of “Call by value” and “Call by reference”. Give example code in C for each. Support your code with suitable comments. 10
- (b) Write Python code to perform the following : 10
- (i) Copy a file first.txt to second.txt
  - (ii) Reading a file
  - (iii) Writing to a file
  - (iv) Appending content to a file