No. of Printed Pages : 4   **MCS-201**

POST GRADUATE DIPOLOMA IN COMPUTER APPLICATIONS (PGDCA-NEW)

Term-End Examination

December, 2021

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 Recursion and Iteration. Give suitable code in C for each.

    5

    (b) Compare flowchart and algorithm. Draw flowchart to find factorial of a number entered by user. 5

(c) How does syntax error differ from semantic error ? Give suitable example for each. 5

(d) Explain the concept of call by reference, with suitable code in C. Give advantage and disadvantage of call by reference. 5

(e) What is C-Python ? Briefly discuss the relation between framework, library, package and module in Python. 5

(f) Differentiate between mutable and immutable data types in Python. Briefly discuss the following data types of Python : 5

   (i) Lists

   (ii) Tuples

   (iii) Dictionaries

(g) What does map( ) function do ? Write a program in Python to print the square of the numbers present in the list, by using map( ) function. 5

(h) Compare overloading and overriding in Python. Give suitable example code for each.   5

2. (a) What are different data types in C ? Explain use of these data types with the help of a C program.   10

   (b) Write Python code to perform the following :   10

   (i) Reading data from a file

   (ii) Creating a file and add content to it

   Support your code with suitable comments.

3. (a) List various looping control statements. Write syntax of each statement. Also draw flowchart for each statement.   10

   (b) What are Lambda functions ? How do Lambda functions differ from Built-in functions ? Write lambda function to calculate cube of a number. Also write the program to find cube of a number without using lambda function.   10

4. (a) Differentiate between Random access and Sequential access of files in C. Discuss the syntax and role of fseek( ) and rewind( ) function, while accessing any file.   10

   (b) What are Cursor Objects ? Briefly discuss the utility of cursor objects. Write Python code for a cursor to execute the SQL query, to print the version of database. Support your program with suitable comments.   10

5. (a) Compare any *two* of the following (give suitable C code for each) :   10

   (i) Buffered I/O and Unbuffered I/O

   (ii) Break and Continue Statement

   (iii) Structure and Union

   (b) Differentiate between the following with the help of suitable example for each :   10

   (i) Co-routines and subroutines

   (ii) Co-routines and threads

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