POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA–NEW)

Term-End Examination

June, 2025

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) Describe syntax errors and semantic errors, with suitable example code in C for each.   5

(b) Write a program in C to concatenate two strings without using strcat( ) function. Support your code with suitable comments.   5

(c) Illustrate the concept of "call by value" with suitable code in C. Also give *one* advantage and *one* disadvantage of call by value.   5

(d) Compare recursion with iteration. Write recursive code in C to find sum of 0 to *n* where '*n*' is an integer.   5

(e) Differentiate between package and module in Python. Give an example for each.   5

(f) What are immutable objects in Python ? How do they differ from the mutable

objects ? List the data types under each category (i.e. mutable and immutable). 5

(g) Differentiate between the concept of method overloading and method overriding in Python. Give suitable example for each. 5

(h) What are the co-routines in Python ? How do they differ from subroutines ? 5

2. (a) Draw a flowchart to find factorial of a number, entered by the user. Also, write algorithm for the same. Transform your algorithm into a suitable code in C. Support your code with suitable comments. 10

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

    (i) Create a database "Emp_DB".   5

    (ii) Create a table "Employee" in database Emp_DB with columns First_Name, Last_Name, Age, Income. Support your code with suitable comments.   5

3. (a) Briefly discuss the utility of the following in C programming. Give example code for each :   10

    (i) Enumerated data types

    (ii) Typedef

    (iii) Typecasting

    (iv) Sizeof operation

(b) Write program in Python to perform the following :

    (i) Display the Fibonacci sequence upto nth term provided by user.   5

    (ii) To check whether a number entered by the user is prime or not.

                                                 5

4. (a) Write Python code to perform the following tasks :   10

    (i) Create a file and add contents to it.

    (ii) Copying a file to another file.

    (iii) Deleting a file.

    (iv) To display size of file in bytes.

    (v) To display first n lines from a file, where n is given by user.

(b) Briefly discuss the utility of the following Built-in string functions : 10

    (i) strstr

    (ii) strupr

    (iii) strncat

    (iv) strchr

    (v) strset

    (vi) strncmp

    (vii) strncpy

    (viii) strspn

    (ix) strrev

    (x) strlwr

5. Write short notes on any *five* of the following : 5×4=20

    (i) Lambda functions

(ii) Decorators

(iii) Iterators

(iv) Generators

(v) Map function

(vi) Unbuffered I/O

(vii) Array of pointers

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