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MCS–201

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

Term-End Examination

June, 2026

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

Time : 3 Hours

Maximum Marks : 100

Weightage : 70%

Note : (i) *Question 1 is compulsory.*

(ii) *Attempt any **three** questions from
the rest.*

1. (a) What is the sizeof operator ? Discuss its syntax. Give output for the following code : 5

```
main ()  
  
{ int num = 5;  
  
printf ("num = %d size in bytes = %d",  
num, sizeof (num));  
  
}
```

- (b) Differentiate between 'Call-by-Value' and 'Call-by-Reference' in C, with suitable program segments in C. 5
- (c) Write a program in C to check whether the string entered by the user is a palindrome or not. Support your code with suitable comments. 5

- (d) What is GOTO statement in C ? Give suitable example code for this statement. Is it advantageous to use GOTO statement in C program ? 5
- (e) Describe the program structure of a python program using suitable block diagram. 5
- (f) Briefly discuss Numpy and Matplotlib libraries in Python. Give utilities of each one of them. 5
- (g) What is indexing of list in Python ? How does it differ from slicing of list ? Give example code to perform indexing and slicing of list in Python. 5

- (h) What is a Tuple in Python ? Can tuple be converted to Dictionary ? Give examples for both. 5
2. (a) Write a program in C to calculate the area and perimeter of a circle whose radius is entered by the user. Support the program with suitable comments. 10
- (b) (i) Write short notes on fseek and ftell functions in C programming. Also illustrate both with program segment. 5
- (ii) Write a C program to generate fibonacci series : 5
- $$f(n) = f(n - 1) + f(n - 2), \text{ where } n$$
- is given by user. Also, draw flow chart for the same.

3. (a) (i) Write a C program to input a string and perform conversion of upper case letters to lower case. Support your program with suitable comments. 5
- (ii) What is a Module in Python ? How does it differ from package ? Give an example for each. 5
- (b) Using structures write a C program to accept data of 5 employees containing their employee id, name, number of days worked and respective wages. Each employee salary is computed based on the number of days worked and respective wages. Find out which employee has the highest salary among all. Support your code with suitable comments. 10

4. (a) Write python code and supporting algorithm to perform the following :
- (i) Display first n lines from a file, n is user input. 5
 - (ii) To check whether a given year is a leap year or not. 5
- (b) What is an exception ? How is it handled in Python ? Illustrate exception handling in Python with suitable code. 10
5. (a) What is inheritance in Python ? Create a Parent class containing two methods and a child class containing its own methods. Write a Python code to inherit both methods from parent to child class. 10

(b) Write short notes on the following :

$$4 \times 2^{1\frac{1}{2}} = 10$$

- (i) Decorators
- (ii) Generators
- (iii) Sub-routines
- (iv) Co-routines

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