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**MCS–201**

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

**Term-End Examination**

**December, 2025**

**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) What do you mean by an algorithm ?  
Mention important features that must  
be present in the algorithm. 5

- (b) What is a Logical error ? How is it different from Runtime error ? Give suitable examples of each in a C program. 5
- (c) What is a typecast operator ? Discuss the syntax of typecast operator. Give output of the following code : 5
- ```
main()  
{  
    int num = 5;  
    printf ("num = %f ", (float) num/3);  
}
```
- (d) Compare *break* and *continue* statements in C. Give suitable example code for each statement. 5
- (e) What is C-Python ? Compare Python with C programming language. 5

- (f) Briefly discuss Tensor flow and Keras libraries in Python. Give the utility of both libraries in Python. 5
- (g) What is a List in Python ? How does a list differ from tuple in Python ? Illustrate both with suitable example code in Python. 5
- (h) What is a Lambda function in Python ? How does Lambda function differ from function in Python ? Give an example for each. 5
2. (a) Write a program in C to count the number of digits and find sum of all the digits in a five-digit integer number entered by the user. Support the program with suitable comments. 10
- (b) (i) Write a short note on *fread* and *fwrite* commands in C (for file handling). Illustrate with the help of a program segment. 5

- (ii) Write a recursive C program to calculate power of a number ( $x^n$ ), without using an in-built function. 5
3. (a) (i) Write a C program to input two strings and concatenate them. Calculate the length of the resultant string without using built-in function. 5
- (ii) What is union in C ? How does it differ from structure ? Give suitable example for each. 5
- (b) Using structures, write a C program to accept data of five students containing their enrollment number, name, subjects, marks. Each student scores marks in five subjects. Calculate total marks of each student and find out who has scored the highest marks among all. 10

4. (a) Write a Python code and supporting algorithm to perform the following :
- (i) Display frequency of each word in a file. 5
  - (ii) Display last  $n$  lines from a file, where  $n$  is given by the user. 5
- (b) Write a Python code to combine two lists containing strings. Use this program to print the string with maximum vowels from the combined list. 10
5. (a) What is a class in Python ? Create a class circle that represents a circle containing methods namely “area” and “perimeter” ? The perimeter method returns perimeter and area method returns area of the circle. Display results for methods in the given class “Circle”. 10

(b) Differentiate between any *two* of the following : 5+5

(i) Sub-routine *vs.* Co-routine

(ii) Method Overloading *vs.* Method Overriding

(iii) Module *vs.* Script

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