BACHELOR OF COMPUTER APPLICATIONS (BCA_NEW)

BCA_NEW ASSIGNMENT SEMESTER-2

ASSIGNMENTS

(January, 2025 & July, 2025 sessions)

FEG-02, MCS-202, MCS-203, MCSL-204, MCS-201, MCSL-205

SCHOOL OF COMPUTER AND INFORMATION SCIENCES , INDIRA GANDHI NATIONAL OPEN UNIVERSITY ,MAIDAN GARHI, NEW DELHI – 110 068

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Important Notes

1. Submit your assignments to the Coordinator of your Study Centre on or before the due date.
2. Assignment submission before due dates is compulsory to become eligible for appearing in corresponding Term End Examinations.
3. To become eligible for appearing in the Term End Practical Examination for the lab courses, it is essential to fulfill the minimum attendance requirements as well as submission of assignments (on or before the due date

Course Code	**:**	**MCS-201**
Course Title	**:**	**Programming in C and PYTHON**
Assignment Number	**:**	**BCA_NEW(II)/201/Assignment/2025**
Maximum Marks	**:**	**100**
Weightage	**:**	**30%**
Last Date of Submission	**:**	**30th April,2025(For January Session)** **31st October, 2025 (For July session)**

There are ten questions in this assignment which carries 80 marks. Each question carries 8 marks. Rest 20 marks are for viva-voce. Answer all the questions from both the sections i.e. Section A and Section B. You may use illustrations and diagrams to enhance the explanations. Include the screen layouts also along with your assignment responses. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation.

SECTION-A (C-Programming)

Question1: Write an algorithm, draw a flow chart and write its corresponding C program to convert a Binary decimal number to its equivalent Decimal number. **(8 Marks)**

Question2: Write an algorithm and use the concept of Structures to write the program in C, to generate Progress-Report of students of a class X of the school for all its 4 terms (the class is of 20 students). Assumptions can be made wherever necessary. **(8 Marks)**

Question 3: Write a C program to generate the following pattern: **(8 Marks)**

```
*
* *
* * *
* * * *
* * * * *
```

Question 4: Write a C program to perform the following operation on matrices D = A * (B + C), where A, B and C are matrices of (3 X 3) size and D is the resultant matrix. **(8 Marks)**

Question 5: Use the concept of File Handling, to write a program in C, to collect a list of N numbers in a file, separate the even and odd numbers from the given list of N numbers, and put them in two separate files namely even_file and odd_file, respectively. **(8 Marks)**

SECTION-B (PYTHON-Programming)

Question 6: (c) Write Python code to perform the following: **(8 Marks)**

(i) Copy content of file first.txt to second.txt
(ii) Reading a file
(iii) Writing into a file
(iv) Appending into a file

Question 7: Write an algorithm to find the slope of a line segment whose end point coordinates are$(x1, y1)$ and $(x2, y2)$. The algorithm gives output whether the slope is positive, negative or zero. Transform your algorithm into Python program. **(8 Marks)**

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

Question 8: Write a program in Python to create a package named Volume and create 3 modules in it named – Cube, Cuboid, and Sphere each having a function to calculate the Volume of Cube, Cuboid, and Sphere respectively. Import the module in a separate location and use the functions. Assumptions can be made wherever necessary. Support your program with suitable comments to improve readability. **(8 Marks)**

Question 9: Write a program in Python to perform the following: **(8 Marks)**

- To find the square root of numbers in a list using lambda function.
- To display the first n lines from a file, where n is given by the user.
- To display the size of a file in bytes
- To display the frequency of each word in a file.

Question 10: What are Co-routines? How do Co-routines differ from threads? How do Co-routines support cooperative multitasking in Python? Compare Subroutines and Co-routines.

(8 Marks)