Introduction to Python programming Lab cycle(Tutorial component of MCA2C04)

As part of the tutorial component of Introduction to Python programming(MCA2C04), students should understand the programming concepts shared in 3 parts (not limited to) during the regular lab hours allotted.

Part - A (Beginner level)

Write Python programs to implement:

1. To print a message - Hello World
2. To perform simple calculation operations like addition, subtraction etc.
3. To understand the significance of true division.
4. To understand the significance of floor division.
5. To explore the different methods of the math library.
6. To print the list of Python keywords (note there are 35 keywords in Python). Hint: Student can make use of the "keywords" package.
7. To print all the command line arguments, including the program / executable name.
8. To perform addition and subtraction using command line arguments.
9. To calculate the length of your name. Also print the text "Invalid name" if the length is more than 25 characters.
10. To print the largest of 2 numbers.
11. To print the smallest of 3 numbers.
12. To print the largest or smallest of 2 numbers using the concept of a ternary operator in Python.
13. To check for voting eligibility.
14. To calculate the sum of any 4 numbers given as input to the sum() function.
15. To print the factorial of a number.
16. To print the squares of numbers between a range.
17. To print the square root of numbers between a range.
18. To print random numbers between 1 and 10.
19. To swap 2 numbers.
20. To check if a number is even or odd.
21. To check if an input number is positive, negative or zero.
22. To check if a year is a leap year or not.
23. To convert a decimal number to binary, octal and hexadecimal values.
24. To find the ASCII value of a character.
25. To print the calendar for the current month.

Part - B (Intermediate Level)

Write Python programs to implement:

1. To solve the roots of a quadratic equation.
2. To solve the complex roots of a quadratic equation.
3. To print the sum of natural numbers.
4. To convert a string to a different case.
5. To understand the usage of a list and its methods in Python.
6. To understand the usage of a tuple and its different methods in Python.
7. To understand the usage of a dictionary and its different methods in Python.
8. To print the squares of numbers taken till a range - in a dictionary format.
9. To illustrate the max and min methods.
10. To differentiate between the range and xrange methods.
11. To understand the sorted() for a list.

12. To understand the different variants of type casting in Python.
13. To print the current date, time using the datetime module.
14. Programs to understand the python functions concept.
15. To understand the concept of recursion in Python.

Part C (Advanced level)

Write Python programs to implement:

1. Understand the concept of a class and its methods.
2. Few programs based on networking concepts of Python.
3. Few programs based on database connectivity and its usage with Python.