

MAHATMA GANDHI UNIVERSITY, KOTTAYAM
MGU-UGP (HONOURS)
THIRD SEMESTER PRACTICAL EXAMINATION
(2024 ADMISSION ONWARDS)

MG3DSCCMA200-AI TECHNIQUES FOR DATA ANALYSIS

Instructions to Examiners

Duration of the Examination: 1.5 Hrs.

Maximum Marks: 35

- Students must submit the Lab Record to attend the Semester End Examination.
- The examiner will assign one question from the provided list to each student.
- Ask students to write the procedure for the assigned problem.
- Conduct a Viva-Voce (oral examination) on the problem.

Evaluation Criteria:

- Procedure/Code - 10 Marks
- Output - 10 Marks
- Viva - 5 Marks
- Record - 10 Marks

MGU-UGP (HONOURS)
THIRD SEMESTER PRACTICAL EXAMINATION
(2024 ADMISSION ONWARDS)

MG3DSCCMA200-AI TECHNIQUES FOR DATA ANALYSIS

Duration of the Examination: 1.5 Hrs.

Maximum Marks: 35

List of Questions

1. Write a Python program to find the largest among three numbers using nested if statement. [A][CO3]
2. Write a Python program to print the multiplication table of a number using a for loop. [A][CO3]
3. Write a Python program to find the sum of digits of a number using a while loop. [A][CO3]
4. Write a Python program to display all prime numbers between 1 and 50. [A][CO3]
5. Write a Python program to generate Fibonacci series of n terms. [A][CO3]
6. Write a Python program to create a 4×3 NumPy array with values from 1 to 12. Also perform the following operations:
 - Slice the 2nd and 4th rows.
 - Extract the elements from the 2rd column using indexing. [A][CO3]
7. Write a Python program to create a NumPy array with elements 10, 20, 30, 40, and 50. Also perform the following operations:
 - Display its shape and size.
 - Reshape it into a 5×1 array. [A][CO3]
8. Write a Python program to create a list of ten numbers and find their sum and average. Also find the largest and smallest elements in the list. [A][CO3]
9. Write a Python program to sort a list in ascending and descending order, and then reverse the list. [A][CO3]
10. Write a Python program to create a tuple of numbers, find its length and also find the maximum and minimum elements in the tuple. [A][CO3]
11. Write a Python program to create a dictionary of student names and their marks. Display all keys and values separately. [A][CO3]
12. Write a Python program to sort a dictionary by its keys and by its values. [A][CO3]
13. Write a Python program to create a DataFrame from a dictionary containing the columns Name, Age, and Marks.
 - Display the DataFrame.
 - Retrieve only the Name column using indexing. [A][CO3]
14. Write a Python program to create a DataFrame from a CSV file named students.csv containing Name, Age, Marks and City. Perform the following operations:
 - Display the first five rows.
 - Show column names and data types. [A][CO3]
15. Write a Python program to create a DataFrame from a CSV file named students.csv containing Name, Age, Marks and City. Perform the following operations:
 - Insert a new column Grade.
 - Delete the Age column. [A][CO3]

16. Write a Python program to create a DataFrame from students.csv containing fields Name, Age, Mark and City. Perform descriptive statistical analysis on the Marks column (count, sum, mean, median, mode, standard deviation, minimum, and maximum of the Marks) [A][CO3]
17. Write a Python program to create a DataFrame with student names and their marks. Draw a bar plot to show each student's marks and a line plot to show the trend of marks across the students. [A][CO3]
18. Write a Python program to create a DataFrame with employee names and their monthly sales. Use the sales column to draw a histogram showing the distribution of sales. [A][CO3]
19. The number of students enrolled in different departments in a college for 2025 is given below. Write a Python program to draw a pie chart to compare enrolments across departments.

Department	Science	Arts	Commerce	Engineering
Students	80	150	180	200

- [A][CO3]
20. Write a Python program to create a DataFrame with Student Name, hours studied and marks scored. Draw a scatter plot comparing hours studied and marks scored by students. [A][CO3]