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Bengaluru

Mid Term Examinations - October 2026

Date: 06/10/2026 **Time:** 02:00 PM - 03:30 PM

Course Code: CSA4503 **Course Name:** Data Analytics and Visualization

Semester: Third Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2	CO3	CO4
Marks	60	36	64	20

PART A: Answer Following Questions. 10 M

Q.N.	Questions	M	CO	BT
1	Define Data Analytics and Exploratory Data Analysis (EDA).	2	CO1	BT1
2	Mention any two applications of Data Analytics.	2	CO1	BT1
3	List any four Python libraries used for Data Analytics.	2	CO2	BT1
4	What is vectorized computation in NumPy?	2	CO2	BT2
5	What is meant by missing data? Mention any two methods for handling it.	2	CO3	BT2

PART B : Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
6	Explain the different stages of the Data Science Process with a suitable example. Discuss the role of EDA in the process.	10	CO1	BT2
7	Write a Python program using NumPy to create an array containing the marks of 10 students and perform the following operations: a) Display the array b) Calculate the mean and median c) Find the maximum and minimum marks d) Calculate the standard deviation e) Display the marks greater than the average mark.	10	CO2	BT3

PART C: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
8	Write a Python program using pandas to create the following student DataFrame: Name, Age, Marks, Department Perform the following operations: a) Display the first five records b) Display students who scored more than 75 c) Calculate the average marks d) Find the maximum and minimum marks e) Sort the DataFrame based on Marks in descending order.	10	CO3	BT3
9	Explain how pandas can be used for data loading, storage, and file handling. Write suitable Python statements for reading and writing data in: a) CSV b) Excel	10	CO3	BT3

PART D: Answer Any 1 Following Questions. 10 M

PTO (Please Turn Over)

Q.N.	Questions	M	CO	BT
10	Consider the following dataset: Name Age Salary Anu 25 35000 Ravi 28 42000 Meena 24 NaN Kiran 30 50000 Arun 27 NaN Write a Python program using pandas to: a) Create the DataFrame b) Identify missing values c) Replace missing Salary values with the mean salary d) Calculate the average age and salary e) Display employees whose salary is greater than ₹40,000.	10	CO4	BT3
11	Write a Python program to read a CSV file using pandas and perform the following operations: a) Display the first 10 records b) Display column names c) Find the number of rows and columns d) Generate descriptive statistics e) Save the cleaned DataFrame into a new CSV file.	10	CO3	BT3

PART E: Answer Any 1 Following Questions. 10 M				
Q.N.	**Questions**	**M**	**CO**	**BT**
12	Write a Python program using pandas to perform string manipulation on the following column: Name = [' john smith ', 'MARY JOHNSON', ' david brown ', 'Sarah Wilson'] Perform the following: a) Remove leading and trailing spaces b) Convert names to title case c) Convert names to uppercase d) Extract the first name e) Find names containing the letter 'a'.	10	CO3	BT3
13	Write a Python program using pandas and matplotlib to analyze monthly sales data: Month = ['Jan', 'Feb', 'Mar', 'Apr', 'May'] Sales = [25000, 32000, 28000, 40000, 45000] a) Create a DataFrame b) Calculate total and average sales c) Identify the month with maximum sales d) Display the sales data e) Plot a suitable graph using matplotlib.	10	CO4	BT4