

GUJARAT TECHNOLOGICAL UNIVERSITY**BE MINOR- SEMESTER-IV EXAMINATION – WINTER 2025****Subject Code:114AT01****Date:03-12-2025****Subject Name:Introduction to Data Science****Time:02:30 PM TO 05:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

Q.1	(a) What is the difference between data analytics and data science?	03
	(b) Explain the use of Numpy in Python data analytics.	04
	(c) Explain the use of data science in different sectors.	07
Q.2	(a) Write a Python program to swap the values of two variables without using a third variable.	03
	(b) Write a Python program to add two matrices.	04
	(c) Write a Python program to count the number of vowels in a given string and also check that given string is a palindrome or not.	07
OR		
Q.3	(c) Write a Python program to do the following:	07
	1) To create a list with ten numbers.	
	2) To get the smallest number from a given list.	
	3) To find the second largest number from a given list.	
	4) To remove the number with the specified index from a given list.	
Q.3	(a) Why Python is used for Data science?	03
	(b) Explain Prescriptive analytics techniques in brief.	04
	(c) Explain significance of Histogram, Skewness and Kurtosis in data analytics.	07
OR		
Q.3	(a) What is prediction in data analysis?	03
	(b) How to calculate Euclidean Distance in Python?	04
	(c) Explain dimensionality reduction and its benefits with an example.	07
Q.4	(a) Write a Python program to create a filter array.	03
	(b) Write a Python program to create and print a Numpy 2D and 3D array.	04
	(c) Explain the EDA (Exploratory Data Analysis) Graphical Technique in detail.	07
OR		
Q.4	(a) What is DataFrame in Panda?	03
	(b) Differentiate Python List, Tuple, Set and Dictionary in detail with an example.	04
	(c) Explain Feature Generation & Feature selection in detail.	07

- Q.5** **(a)** Write a Python program to draw a line in a diagram from position (50, 50) to position (500, 500) using Matplotlib. **03**
- (b)** Differentiate quantitative data and qualitative data with an example. **04**
- (c)** List out and discuss the different skills that next-generation data scientists must require to solve the complexities of real-world problems. **07**

OR

- Q.5** **(a)** Explain any one Python bitwise operator with an example. **03**
- (b)** Explain different ethical issues in Data science. **04**
- (c)** Explain Data Visualization with basic principles, ideas and tools. **07**
