

Enrolment No./Seat No _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII EXAMINATION – WINTER 2025

Subject Code:3174301

Date:18-11-2025

Subject Name:Data Visualization and Modeling

Time:10:30 AM TO 01:00 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) How To Use Python For Data Visualization?	03
	(b) Write Usage of Python Libraries For Data Visualization	04
	(c) What is the bubble plot in matplotlib? Write example of the sample plots are covered by bubble plot.	07
Q.2	(a) What is the primary purpose of using a scatter plot in data visualization?	03
	(b) What is a histogram? Write example of the sample plots are covered by histogram.	04
	(c) How to Create Beautiful Waffle Charts for Data Visualization in Python explain with an example.	07
OR		
	(c) What is Box plot? Write down code for both Box plot using Matplotlib with Python and draw it.	07
Q.3	(a) Discuss the role of data abstraction in ensuring data consistency and integrity in a relational database system	03
	(b) What is Word clouds? List Python libraries that needed to install Word clouds	04
	(c) Write an example of a simple plot using Seaborn.	07
OR		
Q.3	(a) Why might a bar chart be preferred over a line chart for displaying categorical data?	03
	(b) Write advantages and disadvantages of Waffle Charts.	04
	(c) Draw and explain Power BI architecture.	07
Q.4	(a) What is a heatmap, and when would you use it in data visualization?	03
	(b) Write Advantages of Visualizing Spatial Data using Maps.	04

- (c) Explain the role of tile layers in a Folium map and provide an example of how to add a tile layer to a map. **07**
- OR**
- Q.4** (a) How can you use DAX (Data Analysis Expressions) in Power BI, and what is its primary purpose? **03**
- (b) How does the “Slicer” visual work in Power BI, and what is its primary use? **04**
- (c) What is charting Primitives? List all types of Charts and explain Pie Chart and Area Chart. **07**
- Q.5** (a) What is the difference between supervised and unsupervised learning in machine learning? **03**
- (b) What is the role of relationships in Power BI, and how do they affect data modeling? **04**
- (c) Explain the process of creating a Power BI report from data import to final visualization **07**
- OR**
- Q.5** (a) What is Folium? Write syntax for Plotting Maps with Folium. **03**
- (b) What are some common tile providers available in Folium, and how would you switch between them in a map? **04**
- (c) Define data abstraction in the context of data modeling and explain its significance in database design. Discuss the three levels of data abstraction **07**
