



GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN
(Autonomous)

(Affiliated to Andhra University, Visakhapatnam)

M.Tech. - II Semester Regular Examinations, August – 2026
[Computer Science & Engineering (Data Science)]

DATA VISUALIZATION

1. All questions carry equal marks
2. Must answer all parts of the question at one place

Time: 3Hrs.

Max Marks: 70

UNIT-I

1. a. Describe the different types of data and explain how various aesthetics are used to represent them. [7M]
b. Discuss the role of color in data visualization. Explain how color can be used to distinguish categories, represent data values, and highlight important information. [7M]
OR
2. a. Compare different coordinate systems used in visualization and explain where each is most appropriate. [7M]
b. Compare linear and nonlinear axes used in data visualization. Explain their characteristics, advantages, and limitations. Illustrate your answer with appropriate diagrams. [7M]

UNIT-II

3. a. Describe the construction and interpretation of histograms and density plots with suitable examples. [7M]
b. Explain vertical-axis and horizontal-axis approaches for visualizing distributions. [7M]
OR
4. a. Explain Quantile-Quantile (Q-Q) plots. How are they useful for comparing probability distributions? [7M]
b. Compare histograms, density plots, ECDFs, and Q-Q plots with respect to their applications. [7M]

UNIT-III

5. a. Discuss different methods used to visualize nested proportions. Explain mosaic plots, treemaps, nested pies, and parallel sets. [7M]
b. What are correlograms? Explain their construction and interpretation. [7M]
OR
6. a. Explain the concept of dimension reduction and discuss its importance in visualization. [7M]
b. Describe different methods used to visualize associations among quantitative variables. [7M]

UNIT-IV

7. a. Explain different methods used for visualizing geospatial data. [7M]
b. Explain Hypothetical Outcome Plots (HOPs) and discuss their applications. [7M]
OR
8. a. Describe different map projections and discuss their advantages and limitations. [7M]
b. Discuss different techniques used for visualizing uncertainty in statistical data. [7M]

UNIT-V

9. a. Explain the Principle of Proportional Ink with examples. [7M]
b. Discuss direct area visualizations and explain their advantages. [7M]
OR
10. a. Define jittering in the context of scatter plots and explain its purpose in data visualization. [7M]
b. Describe the use of contour lines in representing data density. [7M]