



**B.E DEGREE EXAMINATIONS: NOV/DEC 2023**

(Regulation 2018)

Seventh Semester

**INFORMATION SCIENCE AND ENGINEERING**

U18ISI7202: Data Visualization

**COURSE OUTCOMES**

- CO1:** Understand foundational visualization concepts.  
**CO2:** Apply visualization principles to enhance data visualization.  
**CO3:** Analyze and apply essential design principles to data exploration and visualization.  
**CO4:** Create and design appropriate charts, tables, maps and dash boards.  
**CO5:** Effectively tell a story based on real data.

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 2 = 20 Marks)**

**(Answer not more than 40 words)**

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|--|-----|-------------------|
| 1. What is Data Visualization?.Why it is important?  | CO1 | [K <sub>1</sub> ] |
| 2. In a class of 1000 students, it is required to plot the distribution of marks scored by students in an exam. identify the graph used to represent the above scenario.   | CO4 | [K <sub>2</sub> ] |
| 3. A leading car dealer needs to visualise the share of SUV, Sedan and Hatchback, to the total sales made in the past quarter, to understand the popularity and the demand. Which graphical method would suit the scenario best? | CO4 | [K <sub>2</sub> ] |
| 4. When will Data cluttering occur?.Mention the measures to avoid data cluttering.   | CO2 | [K <sub>2</sub> ] |
| 5. Define cognitive load.  | CO2 | [K <sub>1</sub> ] |
| 6. Differentiate exploratory and explanatory data analysis.  | CO3 | [K <sub>2</sub> ] |
| 7. The number of bins in a histogram is 20 and the range is 10 to 210. Calculate and specify the minimum and maximum value of the third bin in the histogram.  | CO4 | [K <sub>3</sub> ] |
| 8. List the steps to add parameters to tableau dashboard.  | CO5 | [K <sub>1</sub> ] |
| 9. How do you create story point in tableau?   | CO5 | [K <sub>1</sub> ] |
| 10. Specify how data visualization helps to identify outliers.   | CO3 | [K <sub>2</sub> ] |

**Answer any FIVE Questions:-**  
**PART B (5 x 16 = 80 Marks)**  
**(Answer not more than 400 words)**

11. a) In the sales dataset ,sales and profit in all regions are given for different product categories and subcategories. Show the difference between tree map and heat map. Develop the steps to create tree map and heat map for the above scenario in tableau. 10 CO1 [K<sub>3</sub>]
- b) Explain about various data visualization tools. 6 CO1 [K<sub>2</sub>]
12. a) A sales manager presents a quarterly sales report in the form of a data visualization that uses multiple complexes, cluttered charts and graphs. Identify how ineffective visualization fails to provide meaningful insights to sales manager to take decisions. 10 CO2 [K<sub>2</sub>]
- b) Explain various pre attentive attributes of data visualization. 6 CO2 [K<sub>2</sub>]
13. a) Explain the Gestalt principles of visual perception. 8 CO3 [K<sub>2</sub>]
- b) Imagine you are assigned with a task to create data visualization for a marketing team to help them understand the performance of their latest advertising campaign. You have the option to choose between a static visualization and an interactive one. 8 CO3 [K<sub>3</sub>]
- (i) What are the factors would you consider when deciding whether to create a static visualization or an interactive one for the marketing team.
- (ii) How would your choice impact their ability to analyze and derive insights from the campaign data? Justify your answer.
14. a) The retail store manager is responsible for tracking and optimizing the store's sales performance. The manager regularly reviews sales data to make informed decisions and develop strategies for the future. Identify the chart to help the manager to visualize the store's monthly sales data over the past year. Justify your answer. 10 CO4 [K<sub>2</sub>]
- b) List the checklist for dashboard design in tableau 6 CO4 [K<sub>2</sub>]

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| 15. | a) | Describe the metrics used in visual analytics.   | 8 | CO4 | [K <sub>2</sub> ] |
|     | b) | Explain the steps for creating dashboard in tableau.   | 8 | CO5 | [K <sub>2</sub> ] |
| 16. | a) | Explain the art of storytelling in past,present and future   | 8 | CO5 | [K <sub>2</sub> ] |
|     | b) | Create a visualization highlighting the top-selling products and product categories. Use color coding to distinguish between different items. Include a map showing regions where certain products perform exceptionally well. | 8 | CO5 | [K <sub>3</sub> ] |

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