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**PRESIDENCY UNIVERSITY**

**Bengaluru**

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| **End - Term Examinations – JANUARY 2025** |
| **Date:** 15- 01- 2025 **Time:** 01:00 pm – 04:00 pm |

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| --- | --- | --- |
| **School:** SOIS | **Program:** BSD | |
| **Course Code :** CSA2018 | **Course Name :** Data Modeling and Visualization | |
| **Semester**: III | **Max Marks**:100 | **Weightage**:50% |

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| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** | **CO5** |
| **Marks** | **29** | **29** | **21** | **21** |  |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Do not write anything on the question paper other than roll number.*

**Part A**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Answer ALL the Questions. Each question carries 2marks. 10Q x 2M=20M** | | | | |
| **1** | Define Data Science and its core objectives | **2 Marks** | **L2** | **CO1** |
| **2** | List key skills required to become a data scientist. | **2 Marks** | **L1** | **CO1** |
| **3** | List common tools and techniques used in EDA | **2 Marks** | **L1** | **CO2** |
| **4** | Define Exploratory Data Analysis (EDA) and its objectives | **2 Marks** | **L2** | **CO2** |
| **5** | Identify key features of effective decision-support visualizations | **2 Marks** | **L2** | **CO3** |
| **6** | Define spatial data and give examples | **2 Marks** | **L2** | **CO3** |
| **7** | List visualization techniques for multivariate data. | **2 Marks** | **L1** | **CO3** |
| **8** | Identify common problems in creating geospatial visualizations. | **2 Marks** | **L2** | **CO4** |
| **9** | List of interaction operators commonly used in visualizations | **2 Marks** | **L1** | **CO4** |
| **10** | Define point and line | **2 Marks** | **L2** | **CO4** |

**Part B**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Answer the Questions. Total Marks 80** | | | | | |
| **11.** | **a.**  **b.** | Propose a learning path for someone new to Data Science, covering essential skills and tools. [15 Marks]  Describe the difference between Data Science and traditional data analysis. [10 Marks] | **25 Marks** | **L4** | **CO1** |
| **or** | | | | | |
| **12.** | **a.**  **b.** | Explain the difference between deleting rows and imputing missing data. [15 Marks]  Describe the implications of missing data on analysis and modeling. [10 Marks] | **25 Marks** | **L4** | **CO1** |
|  |  |  |  |  |  |
| **13.** | **a.**  **b.** | Explain the difference between one-hot encoding and label encoding. [15 Marks]  Describe when to use ordinal encoding for categorical variables. [10 Marks] | **25 Marks** | **L4** | **CO2** |
| **or** | | | | | |
| **14.** | **a.**  **b.** | Explain why EDA is crucial before applying statistical or machine learning models. .[15 Marks]  Describe how EDA helps in identifying outliers and anomalies in data. .[10 Marks] | **25 Marks** | **L4** | **CO2** |

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| **15.** | **a.** | Create a bubble chart to visualize three variables simultaneously. | **15 Marks** | **L4** | **CO3** |
| **Or** | | | | | |
| **16.** | **a.** | Use a heatmap to represent correlations in a multivariate dataset. | **15 Marks** | **L4** | **CO3** |

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| **17.** | **a.** | Design an interactive dashboard that seamlessly integrates operators, operands, and spaces for a specific geospatial task | **15 Marks** | **L4** | **CO4** |
| **Or** | | | | | |
| **18.** | **a.** | Explain how filtering and brushing improve user interaction with spatial data | **15 Marks** | **L4** | **CO4** |

**\*\*\*\*\* BEST WISHES \*\*\*\*\***