|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RollNo |  |  |  |  |  |  |  |  |  |  |  |

PRESIDENCYUNIVERSITY BENGALURU

SCHOOL OF ENGINEERING

MAKE UP EXAMINATION – JULY 2024

|  |  |
| --- | --- |
| **Semester:**  IV | **Date:** 01 JULY 2024 |
| **CourseCode:** CSE2026 | **Time:** 09.30amto12.30pm |
| **CourseName:** DataHandlingand Visualization | **MaxMarks:** 100 |
| **Program:** B.Tech-Computer Science and Engineering | **Weightage: 50%** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

|  |  |  |  |
| --- | --- | --- | --- |
| **PART A** | | | |
| **ANSWER ANY 4 QUESTIONS 4Q X 5M=20M** | | | |
| 1 | What is text data visualization? Provide an example of a method used to visualize text data | (CO 1) | [Knowledge] |
|  | | | |
| 2 | Outline five guidelines for designing effective visualizations and critically discuss how ignoring these guidelines could lead to misinterpretation of data in business intelligence. | (CO2) | [Knowledge] |
|  | | | |
| 3 | Discuss various streaming visualization techniques and their applications in monitoring network traffic. Explain the benefits and limitations of each technique in terms of scalability and real-time performance. | (CO4) | [Knowledge] |
|  | | | |
| 4 | How does the choice of visualization type impact the effectiveness of streaming data presentation? | (CO4) | [Knowledge] |
|  | | | |
| 5 | Describe the use of size as a visual variable in tree visualizations | (CO2) | [Knowledge] |
|  | | | |
| 6 | Detail the dos and don’ts of data visualization in the context of educational data to enhance learning and teaching experiences. Explain how adhering to these principles can lead to more effective communication of student performance and learning gaps. | (CO3) | [Knowledge] |
|  | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **PART B** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 10M=50M** | | | |
| 7 | Examine the challenges and strategies for effective multivariate data visualization in the field of genomics research. Discuss how visualizing complex datasets involving multiple variables can aid in discovering patterns in genetic data, with specific examples of successful applications and discussion of the latest visualization software that caters to these needs. | (CO3) | [APPLICATION] |
|  | | | |
| 8 | Discuss about matplotlib package in data visualization.  a)What is purpose of matplotlib?  b)How to draw a simple line plot using matplotlib? | (CO3) | [APPLICATION] |
|  | | | |
| 9 | Discuss about vector visualization techniques and how it could be used in natural disaster predictions | (CO2) | [COMPREHENSION] |
|  | | | |
| 10 | Analyze how text data visualization assists in sentiment analysis. Provide a detailed example, include in the types of visualizations that could be used to represent data extracted from social media feeds | (CO3) | [APPLICATION] |
|  | | | |
| 11 | Discuss various streaming visualization techniques and their applications in monitoring network traffic. Explain the benefits and limitations of each technique in terms of scalability and real-time performance. | (CO4) | [COMPREHENSION] |
|  | | | |
| 12 | Describe the process of creating a heat map for spatial data analysis and discuss the importance of color selection in accurately conveying information | (CO2) | [COMPREHENSION] |
|  |  |  |  |
| 13 | Conduct an in-depth analysis comparing the use of data visualization in the healthcare and finance sectors. Discuss specific visualizations that have led to significant insights or improvements in each sector, the data challenges unique to each, and how emerging trends in data visualization are likely to shape their future. | (CO4) | [APPLICATION] |
|  | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **PART C** | | | |
| **ANSWER ANY 2 QUESTIONS 2Q X 15M=30M** | | | |
| 14 | Provide a thorough analysis of how spatial data visualization can enhance decision-making processes in environmental science, specifically in tracking climate change effects. Discuss the integration of satellite imagery and GIS data, the types of visualizations that can be created, and Their implications for policy-making and public awareness | (CO4) | [APPLICATION] |
|  | | | |
| 15 | Evaluate the application of streaming analysis and visualization in real-time sports analytics. Discuss how these technologies transform coaching and player performance analysis, what data is crucial, the types of visualizations that provide the most value, and future trends in this area. | (CO4) | [APPLICATION] |
|  | | | |
| 16 | Explore the role of text data visualization in big data analytics, focusing on its application in understanding user-generated content on digital platforms. Detail methodologies for visualizing large text datasets, assess challenges such as data variety and velocity, and discuss how these visualizations can influence business strategies and customer service improvements. | (CO4) | [APPLICATION] |
|  | | | |
|  | | | |