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(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2023 ONLY) REG.NO. :

23UDA516

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : NOVEMBER 2025

B.Sc Computer Science With Data Analytics **MAXIMUM MARKS: 75**
SEMESTER-V **TIME : 3 HOURS**

PART-III
23UDA516– DATA VISUALIZATION

SECTION – A **(10 X 1 = 10 MARKS)**

ANSWER THE FOLLOWING QUESTIONS.

1. What is the main goal of using data visualization?

   A) To store data B) To analyze data

   C) To communicate insights D) To create databases

2. Which type of plot best captures multi-variable interactions within a two-dimensional space?

   A) Line Chart B) Pie Chart C) Scatter plots D) Box Plot

3. Dynamic visualizations differ from static ones mainly in their?

   A) Layout format B) Response to user interaction

   C) Use of heatmaps D) Resolution

4. In Tableau, which of the following enhances user understanding of dashboard interactivity?

   A) Metadata B) Tooltip actions C) Legend color D) Publish function

5. What is the purpose of a slicer in Power BI?

   A) Create calculations B) Filter data C) Create Visualizations D) Manage data models

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES

6. What is the primary purpose of using pseudo-code in the visualization process?
7. What distinguishes one-dimensional from two-dimensional visualization.
8. What is meant by spatial data?
9. Which type of data is most relevant in a heatmap showing population density?
10. What is the purpose of sharing a dashboard in Power BI?

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SECTION – B (5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

11. a)Visualizations are often considered "narratives." Justify this with examples from statistical plots.

(OR)

b)Evaluate how scatter plots contribute to decision-making beyond mere correlation identification.

12. a)How do three-dimensional visualizations improve data exploration in environmental datasets?

(OR)

b)Compare static and dynamic spatial visualizations with an example scenario.

13. a)Discuss the differences between point, line, and area visualizations in terms of encoding geospatial data. **(OR)**

b)List three issues faced in spatial data visualization and propose mitigation strategies.

14. a)Tableau allows calculated fields. Demonstrate how it can be used to apply custom business logic. **(OR)**

b)Detail the process of publishing a Tableau dashboard with dynamic filters.

15. a)Explain how Power BI supports collaboration among departments using shared dashboards.

(OR)

b)How does Power BI integrate service-based datasets with desktop models?

SECTION – C (5 X 8 = 40 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

16. a)Trace the historical evolution of visualization, from early maps to interactive dashboards.

(OR)

b)Analyze how user perception affects visualization design decisions and accessibility.

17. a)Create a comparative framework for 1D, 2D, and 3D spatial visualizations in urban planning.

(OR)

b)Describe a real-world use case where dynamic data combining techniques led to better decisions.

18. a)Design a strategy to visualize road networks and traffic congestion across a city using line data.

(OR)

b)Elaborate on the challenges in visualizing geospatial area data across varying resolutions.

19. a)Explain how Tableau's 'LOD expressions' improve dashboard precision.

(OR)

b) Discuss the impact of using Tableau's dashboard actions (highlight, filter, URL) on user engagement.

20. a)With a business example, show how Power BI integrates multiple datasets to form a single dashboard.

(OR)

b)Discuss the significance of data refresh in Power BI and how it can be managed.

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