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Course Code	22CA/CD633
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Sixth Semester B.E. Degree Examinations, May/June 2026

DATA VISUALIZATION WITH POWER BI

(CSE-AI & CSE-DS)

Duration: 3 hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions choosing ONE full Question from each Module.
 2. Missing data, if any, may be suitably assumed

<u>Q. No.</u>	<u>Question</u>	<u>Marks</u>	<u>(RBT:CO: PI)</u>
<u>Module-1</u>			
1.	a. What are the seven stages involved in data visualization process, and how do they contribute to the effective communication of insights and patterns in data?	10	(2 :1: 2.2.1)
	b. Explain the concept of mapping in data visualization, and how are different types of maps used to communicate data insights?	10	(2 :1: 2.2.1)
(OR)			
2.	a. Explain tree maps and their applications in hierarchical data representation.	10	(2 :1: 2.2.1)
	b. Describe the primary objectives of data visualization, and what are some common data visualization options that can be used to achieve these objectives?	10	(2 :1: 2.2.1)
<u>Module-2</u>			
3.	a. Explain different sources for acquiring data. Discuss how data can be obtained from the internet.	07	(2 :2: 2.2.1)
	b. How can data be effectively extracted and processed from various sources, including files, folders, databases, and the internet, and what are the key considerations for dealing with large numbers of files and compressed data?	06	(3 :2: 3:4:1)
	c. Explain the concept of Regular Expressions (regexps). Illustrate with examples.	07	(2 :2: 2.2.1)
(OR)			
4.	a. How do text markup languages facilitate data parsing, and what are the key features and benefits of using markup languages such as XML and HTML?	07	(2 :2: 2.2.1)
	b. Discuss the key concepts and techniques involved in parsing data, and how can they be applied to extract insights from complex data sets?	06	(3 :2: 3:4:1)
	c. Describe advanced detective work in data parsing. How do analysts extract hidden or complex data?	07	(2 :2: 2.2.1)
<u>Module-3</u>			
5.	a. Outline the different types of layouts used in data visualization, Explain each one how are they applied.	07	(2 :3: 2.2.1)

- b. Describe the role of scales in data visualization, and how do they assist in mapping data values to visual elements? 06 (3 :3: 3:4:1)
- c. Discuss how you would design a visualization system to represent attacking and defending scenarios? Explain. 07 (2 :3: 2.2.1)
- (OR)**
6. a. Describe different layout types which help in uncovering various insights from data. 07 (2 :3: 2.2.1)
- b. Discuss how can intrusion detection log data be visualized to identify potential security threats or attacks? 06 (3 :3: 3:4:1)
- c. Discuss about the GeoJSON? Describe how does it differ from standard JSON? 07 (2 :3: 2.2.1)

Module-4

7. a. How does Power BI support business intelligence processes, and what makes it a valuable tool for organizations? 07 (2 :4: 2.2.1)
- b. Provide a brief explanation of the following elements used in visual storytelling:
Legend and its role in interpretation
Use of shapes and colours to convey meaning
Purpose of data labels in enhancing clarity 06 (2 :4: 3:4:1)
- c. Which main components make up the Power BI ecosystem, and in what ways do they collaborate to enable end-to-end data analysis? 07 (2 :4: 2.2.1)

(OR)

8. a. What is Power BI? List the core platforms and how they contribute to data analysis and reporting? 07 (2 :4: 2.2.1)
- b. In what ways can you personalize and configure the Power BI interface to better align with your workflow or preferences? 06 (2 :4: 3:4:1)
- c. Write concise notes on the following visualization techniques in Power BI:
(i) Column and Bar Charts (ii) Ranking 07 (2 :4: 2.2.1)

Module-5

9. a. What are the steps to build a Chord Diagram in Power BI, and how can it be used to represent category relationships? 07 (2 :5: 2.2.1)
- b. What are some examples of advanced visuals in Power BI, and how do they enhance data analysis and presentation? (Support your explanation with relevant diagrams.) 06 (3 :5: 3:4:1)
- c. What is a Word Cloud in Power BI, and how is it used to visually emphasize key terms within textual data? 07 (2 :5: 2.2.1)

(OR)

10. a. What are the key differences between Pie and Donut charts in Power BI, and how can each be effectively used in data visualization? (Include diagrams to support your explanation) 07 (2 :5: 2.2.1)
- b. How do Gauges work in Power BI, and in which scenarios are they most effectively used for data visualization? 06 (3 :5: 2:2:1)
- c. What are some examples of advanced visuals in Power BI, and how do they enhance data analysis and presentation? (Support your explanation with relevant diagrams.) 07 (2 :5: 3:4:1)

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