

**BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)**

III - B.Tech II-Semester Regular Examinations (BR23), MAY - 2026

DATA VISUALIZATION (COMMON TO CSE-AI&DS, AI&ML)

Time: 3 hours

Max. Marks: 70

*Question Paper consists of Part-A and Part-B
Answer ALL the question in Part-A and Part-B*

PART-A (10X2 = 20M)

	Marks	CO	BL
1. a) Define data visualization and state any two of its key objectives	(2M)	CO1	L1
b) List any four Gestalt principles.	(2M)	CO1	L1
c) Define visual mapping.	(2M)	CO2	L1
d) Name the stages of the visualization reference model.	(2M)	CO2	L1
e) Differentiate one-dimensional and multi-dimensional data with one example each.	(2M)	CO3	L2
f) What is a "misleading visualization"? Give one real-world example.	(2M)	CO3	L2
g) Distinguish between tree visualization and graph visualization.	(2M)	CO4	L2
h) What is metaphorical visualization? Provide one example.	(2M)	CO4	L2
i) Define volumetric data and mention one domain where it is used.	(2M)	CO5	L2
j) Define Geographic Information System (GIS).	(2M)	CO5	L1

PART-B (5X10 = 50M)

2a. Describe the history and evolution of data Visualization.	5(M)	CO1	L2
b. Explain the relationship between visualization and any two related fields.	5(M)	CO1	L2
(OR)			
3a. Describe the data-visualization process with a neat block diagram	5(M)	CO1	L2
b. Discuss any four Gestalt principles with examples.	5(M)	CO1	L2
(OR)			
4a. Explain the visualization reference model in detail with a diagram.	5(M)	CO2	L2
b. Illustrate visual mapping with a suitable example.	5(M)	CO2	L3
(OR)			
5a. Describe visual analytics and its main components.	5(M)	CO2	L2
b. For a dataset of student name, subject and marks, design a suitable chart using visual mapping. Justify the visual variables used.	5(M)	CO2	L3
6a. Classify visualization systems based on datatype with examples.	5(M)	CO3	L2
b. Outline a simple dashboard design for COVID-19 case tracking. Mention the data and visual elements used.	5(M)	CO3	L4
(OR)			
7a. Examine any four common interaction techniques used in visualization.	5(M)	CO3	L2
b. What are misleading visualizations? Give any two examples and suggest how to avoid them.	5(M)	CO3	L4

8a.	Discuss any two techniques used for visualizing graphs.	5(M)	CO4	L2
b.	Discuss any two techniques used for visualizing trees with examples.	5(M)	CO4	L2
(OR)				
9a.	Explain software visualization with example.	5(M)	CO4	L2
b.	Explain metaphorical visualization with example.	5(M)	CO4	L2
10a	Explain visualization of volumetric data with example.	5(M)	CO5	L2
b.	Discuss visualization of vector fields with any one technique	5(M)	CO5	L2
(OR)				
11a	Explain GIS systems and map-based visualization with example.	5(M)	CO5	L2
b.	Explain collaborative visualization, and mention any two recent trends in visualization.	5(M)	CO5	L2
