R22 Regulation *Subject code: 4O6FA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B. Tech. VI Semester Regular / Supplementary Examinations, April 2026

DATA VISUALIZATION

(IT)

Maximum Marks: 60 Date:23.04.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	Define data visualization and explain its importance in data analysis.	1M	1	2
b)	Describe the role of data preprocessing in visualization.	1M	1	3
c)	List the eight visual variables used in visualization.	1M	2	1
d)	Explain visualization techniques for three-dimensional data.	1M	2	2
e)	Describe tree visualization techniques.	1M	3	2
f)	Explain adjacency matrix visualization.	1M	3	3
g)	Describe single document visualization techniques.	1M	4	2
h)	Discuss about animation in visualization transformations.	1M	4	3
i)	Explain problems encountered in designing effective visualizations.	1M	5	2
j)	Define user tasks in visualization evaluation.	1M	5	2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	a) Discuss various types of data used in visualization and their characteristics.	5M	1	3
	b) Explain how visualization helps in understanding structured and unstructured data.	5M	1	2
	OR			
3	a) Discuss the historical evolution of visualization and its relationship with other disciplines such as statistics and computer science.	5M	1	4
	b) Elucidate the visualization process with a suitable diagram.	5M	1	5
4	a) Discuss the semiology of graphical symbols and their role in visualization.	5M	2	3
	b) Analyze the taxonomy of visualization techniques.	5M	2	4
	OR			
5	a) Apply visualization techniques for dynamic data representation.	5M	2	3
	b) Analyze visualization methods for line data and area data in geospatial analysis.	5M	2	4

6	a) Describe visualization techniques for hierarchical data structures. b) Enlighten how multiple visualization techniques can be combined for effective analysis.	5M 5M	3 3	2 5
	OR			
7	a) Differentiate tree visualization methods, treemaps and dendrograms. b) Analyze the challenges involved in visualizing complex networks.	5M 5M	3 3	3 4
8	a) Explain levels of text representation used in document visualization. b) Describe the vector space model and its role in document visualization.	5M 5M	4 4	3 3
	OR			
9	a) Explain the interaction concepts in visualization systems. b) Describe interaction operators, operands and spaces with examples.	5M 5M	4 4	2 3
10	a) Explain the steps involved in designing effective visualizations. b) Discuss visualization toolkits and their role in developing visualization systems.	5M 5M	5 5	5 5
	OR			
11	a) Discuss visualization systems based on analysis types. b) Illustrate user characteristics, data characteristics and visualization characteristics.	5M 5M	5 5	2 4