Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

M.E DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025

Third Semester

Computer Science and Engineering

PCSE2418 – Data Visualization Techniques

Regulations – 2024

Duration : 3 Hrs *Maximum : 100 Marks*

*PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)*

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	Why is Visualization Important?	L2	1	2
2.	How to explore the relationship between two variables?	L2	1	2
3.	State the Features of Graphics.	L2	2	2
4.	What is Perception?	L1	2	2
5.	Describe the effective methods for probing and analyzing two-dimensional data, and how these methods can reveal underlying patterns or trends.	L2	3	2
6.	Define Dot Maps.	L2	3	2
7.	Write the three levels of text representation.	L1	4	2
8.	Briefly write note on object Space (3D Surfaces) method.	L2	4	2
9.	Give an example of an unstructured data type, and describe what aspects of the data could be visualized.	L1	5	2
10.	How important are aesthetics in designing visualizations?	L2	5	2

*PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)*

Q.No			*Questions*	*BLT*	*CO*	*Marks*
11.	a	i	Outline the steps are involved in the process of creating data visualization.	L2	1	8
		ii	Illustrate the global variables and functions that exist in a pseudocode environment.	L2	1	8
			Or			
	b		Explain the following methods for preprocessing data: i. Missing Values and Data Cleansing ii. Normalization iii. Segmentation iv. Sampling and Subsetting	L2	1	16
12.	a		Examine how different visual variables contribute to enhancing the effectiveness and impact of data visualizations.	L4	2	16
			Or			
	b		How does experimental semiotics, grounded in Gibson's affordance theory, examine the role of perception in interpreting and interacting with signs and symbols?	L4	2	16

13.	a	i	Discuss the pros and cons of using an isosurface data representation versus slicing a three-dimensional volume. Give examples.	L2	3	8
		ii	Map projections are used to visualize geospatial data. Why are these projections difficult?	L2	3	8
			Or			
	b	i	Describe space-filling and non–space-filling methods in detail.	L2	3	8
		ii	Give some examples of how rules for graph drawing can conflict with each other.	L2	3	8
14.	a	i	Identify in what ways extended text visualizations might transform our understanding of complex information.	L2	4	8
		ii	Give an example of two specific interaction operations in different spaces that are commutative, i.e., the results do not depend on the order of application. Give an example where they are not commutative. Are there any general rules you can think of for identifying the conditions under which commutativity would hold or not hold?	L2	4	8
			Or			
	b		Describe the spaces and interaction techniques in which you feel the fisheye lens algorithm could be effectively applied.	L2	4	16
15.	a	i	Illustrate the current research activities focused on expanding the range of data characteristics that can be effectively visualized.	L2	5	8
		ii	Explain the issues of Cognition, Perception, and Reasoning.	L2	5	8
			Or			
	b		Which area of graphics hardware development do you feel will have the biggest impact on the field of visualization: display technology (i.e., bigger screens, more pixels) or rendering technology (e.g., faster GPUs)? Explain your answer.	L2	5	16