Subject Name: Data Visualization
Subject Code: 3160717

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	QUESTIONS	
	UNIT NO 1 : Introduction to Data Visualization:	
	TOPIC 1: Acquiring and Visualizing Data, Simultaneous acquisition and visualization, Applications of Data Visualization, Keys factors of Data Visualization (Control of Presentation, Faster and Better JavaScript processing, Rise of HTML5, Lowering the implementation Bar)	
Sr. No	**SHORT QUESTIONS**	**Marks**
1.	Define Data Visualization. **[LJIET]**	**01**
2.	List out the Key Factors of data visualization. **[LJIET]**	**01**
3.	List out the real applications of Data Visualization. **[LJIET]**	**01**
Sr. No	**DESCRIPTIVE QUESTIONS**	**Marks**
1.	What are the key Factors of Data Visualization? **(Jun 2022) [LJIET]**	**07**
2.	What is Acquiring and Visualizing Data? **(Dec 2022) [LJIET]**	**03**
3.	Describe Simultaneous acquisition and visualization. **(Dec 2022) [LJIET]**	**04**
4.	Why is HTML5 so important to data visualization? **(Dec 2022) [LJIET]**	**04**
5.	How to use the HTML5 canvas to render dynamic column charts? **(Dec 2022) [LJIET]**	**07**
6.	Describe Loading and Filtering External Data in data visualization **(Dec 2022) [LJIET]**	**07**
7.	What is Data Visualization? Explain how data is visualized? **[LJIET]**	**07**
8.	Write a note on Acquiring and Visualizing Data. **[LJIET]**	**07**
9.	Discuss what the real applications of Data Visualization are. **[LJIET]**	**07**
10.	List and explain the Key Factors of data visualization. **[LJIET]**	**07**
11.	Explain the basic building blocks for data visualization. **[LJIET]**	**07**
12.	What is HTML5? Why is HTML5 so important to data visualization? **[LJIET]**	**07**
	TOPIC 2: Exploring the Visual Data Spectrum: charting Primitives (Data Points, Line Charts, Bar Charts, Pie Charts, and Area Charts), Exploring advanced Visualizations (Candlestick Charts, Bubble Charts, Surface Charts, Map Charts, and Infographics). Making use of HTML5 CANVAS, Integrating SVG	
Sr. No	**SHORT QUESTIONS**	**Marks**
1.	Define Data Points. **[LJIET]**	**01**
2.	Define Line Chart. **[LJIET]**	**01**
3.	Define Bar Chart. **[LJIET]**	**01**
4.	Define Area Chart. **[LJIET]**	**01**
5.	Define Pie Chart. **[LJIET]**	**01**
6.	Define Candlestick Chart. **[LJIET]**	**01**
7.	Define Bubble Chart. **[LJIET]**	**01**
8.	Define Surface Chart. **[LJIET]**	**01**
9.	Define Map Chart. **[LJIET]**	**01**
10.	Explain SVG. **[LJIET]**	**01**

Sr. No	DESCRIPTIVE QUESTIONS	Marks
1.	Differentiate following: 1) Canvas and SVG **(Jun 2022) [LJIET]**	02
2.	Explain Scalable Vector Graphics. **(Dec 2022) [LJIET]**	03
3.	Explain bar chart, pie chart, line chart, bubble chart with example. **(Jun 2022) [LJIET]**	07
4.	Explain Data Points and XY chart with example. **(Jun 2022) [LJIET]**	04
5.	What is charting Primitives? List all types of Charts and explain Pie Chart and Area Chart.**(Dec 2022) [LJIET]**	07
6.	Define following terms: Candlestick Charts, Bubble Charts, and Surface Charts..**(Dec 2022) [LJIET]**	03
7.	How the HTML5 canvas differs from SVG graphics tools.**(Dec 2022) [LJIET]**	04
8.	What is Infographics explain with example.**(Dec 2022) [LJIET]**	03
9.	List out different types of chart. Explain any two of them in detail. **[LJIET]**	07
10.	What is Data Point? Explain Line chart with appropriate example. **[LJIET]**	07
11.	Explain Bar Chart and Pie Chart in details. **[LJIET]**	07
12.	Explain Area chart with an example. **[LJIET]**	04
13.	Write a short note on Surface Chart and Map Chart. **[LJIET]**	04
14.	Explain Bubble chart with an example. **[LJIET]**	04
15.	Write the difference for the following: **[LJIET]** i) Pie Chart and Donut Chart ii) Bar Chart and Histogram	07
16.	What is HTML5? Explain the new key feature of HTML5. **[LJIET]**	07
17.	Define the term legend in a chart. Differentiate between SVG and Canvas. **[LJIET]**	04
18.	Explain Map Graphs and infographics in detail. **[LJIET]**	07
19.	Which are two effective tools for drawing graphics in the browser? Explain advantage and disadvantage of any one of them. **[LJIET]**	04

UNIT NO 2 :Basics of Data Visualization – Tables:

TOPIC 1: Reading Data from Standard text files (.txt, .csv, XML), Displaying JSON content

Sr. No	SHORT QUESTIONS	Marks
1.	What is AJAX? **[LJIET]**	01
2.	What is difference between jQuery and AJAX? **[LJIET]**	01
3.	What is CDN? What is it used for? **[LJIET]**	01
4.	What is JSON? Give example. **[LJIET]**	01

Sr. No	DESCRIPTIVE QUESTIONS	Marks
1.	What is XSLT? Explain with example. **(Jun 2022) [LJIET]**	03
2.	Write a code to read CSV file and display its content on the browser **(Jun 2022) [LJIET]**	04
3.	Define Document Object Model (DOM). Write a code to Read a XML file and display its content on the browser. **(Jun 2022) [LJIET]**	07
4.	Define DTD, Explain XML syntax with example. **(Jun 2022) [LJIET]**	07
5.	Differentiate between .xml file and .csv file **(Jun 2022) [LJIET]**	03
6.	How to read JSON file? Explain with example. **(Jun 2022) [LJIET]**	04
7.	Develop Following Program Using HTML5 and JavaScript. Read the data from XML file and draw Simple Chart**(Dec 2022) [LJIET]**	04

8.	Develop Following Program Using HTML5 and JavaScript Read JSON Data and draw Data Table. **(Dec 2022) [LJIET]**	**07**
9.	How to read data from standard text file using jQuery. Explain with Example. **[LJIET]**	**07**
10.	What is full form of CSV? Write a code to read csv file and display its contents on the browser using jQuery. **[LJIET]**	**07**
11.	How to read data using jQuery from JSON file. Explain with example. **[LJIET]**	**07**
12.	Explain: Reading .xml file using JavaScript & jQuery **[LJIET]**	**07**
	TOPIC 2: Outputting Basic Table Data (Building a table, Using Semantic Table, Configuring the columns), Assuring Maximum readability (Styling your table, Increasing readability, Adding dynamic Highlighting), Including computations, Using data tables library, relating data table to a chart	
Sr. No	**SHORT QUESTIONS**	**Marks**
1.	What is use of scope attribute in <th> tag? **[LJIET]**	**01**
2.	Explain purpose of cell padding and cell spacing in table. **[LJIET]**	**01**
3.	Which tags are used to set header, body and footer of a table? **[LJIET]**	**01**
Sr. No	**DESCRIPTIVE QUESTIONS**	**Marks**
1.	Explain CSS-style selectors with example. **(Dec 2022) [LJIET]**	**04**
2.	Why do we use semantic mark-up for table? **[LJIET]**	**05**
3.	Why do we need CSS? Explain CSS Selector. **[LJIET]**	**05**
4.	How we can increase the readability of table. Explain it with the help of an example. **[LJIET]**	**07**
5.	Explain dynamic highlighting with the help of an example. **[LJIET]**	**07**
6.	How can we use data table library in table? Explain it with the help of an example. **[LJIET]**	**07**
7.	Explain how we can relate data table to a chart with the help of an example. **[LJIET]**	**07**
8.	How to configure and format column of a table. What are the attributes used for configuring column? **[LJIET]**	**07**
9.	Describe use of nth-child selector with example. **[LJIET]**	**07**
10.	List the tags used for creating a table. Explain the use of table with the help of an example. **[LJIET]**	**07**
11.	How to add dynamic highlighting in a table? Depict an example for the same. **[LJIET]**	**07**
12.	Write a code to demonstrate use of Data Table library. **[LJIET]**	**07**
13.	Write any two script from following used with Data Table library: **[LJIET]** a. Sort table b. Pagination c. Rendering chart from table	**07**
UNIT NO 3 : Visualizing data Programmatically:		
	TOPIC 1: Creating HTML5 CANVAS Charts (HTML5 Canvas basics, Linear interpolations, A Simple Column Chart, Animations)	
Sr. No	**SHORT QUESTIONS**	**Marks**
1.	Explain use of window.setInterval() method. **[LJIET]**	**01**
2.	Explain use of window.setTimeout() method. **[LJIET]**	**01**
3.	Explain use of window.requestAnimationFrame() method. **[LJIET]**	**01**
Sr. No	**DESCRIPTIVE QUESTIONS**	**Marks**

1.	Explain syntax of polygon and poly points in canvas with example. **(Jun 2022) [LJIET]**	**03**
2.	Differentiate between Linear Scale and Ordinal Scale. **(Jun 2022) [LJIET]**	**03**
3.	Prepare column chart using the HTML5 canvas. **(Dec 2022) [LJIET]**	**03**
4.	Explain draw and clear step of animation. **[LJIET]**	**03**
5.	What is Linear Interpolation? Where to use Interpolation in chart. **[LJIET]**	**07**
6.	What is Canvas? How we can create Canvas explain with the help of an example. **[LJIET]**	**07**
7.	Write java script to plot simple column chart using canvas**. [LJIET]**	**07**
8.	How to animate canvas in HTML5? Explain in detail. **[LJIET]**	**07**
9.	Write a java script to animate a circle in canvas. **[LJIET]**	**07**
10.	Write java script to plot bar chart of two data series using canvas**. [LJIET]**	**07**
	TOPIC 2: Starting with Google charts (Google Charts API Basics, A Basic bar chart, A basic Pie chart, Working with Chart Animations).	
Sr. No	**SHORT QUESTIONS**	**Marks**
1.	How to setup Google chart API? **[LJIET]**	**01**
2.	Explain use of pieHole attribute. **[LJIET]**	**01**
Sr. No	**DESCRIPTIVE QUESTIONS**	**Marks**
1.	How to work with Google API? Give an example of pie chart in Google API **(Jun 2022) [LJIET]**	**07**
2.	How to use the Google Charts API to render a pie chart for sales data of various electronic devices. **(Dec 2022) [LJIET]**	**07**
3.	How to use the Google Charts API to animate a bar chart? **(Dec 2022) [LJIET]**	**07**
4.	Develop Following Program Using HTML5 and Google Chats API and Map API Using Google Charts API Basics draw charts like a Line chart **(Dec 2022) [LJIET]**	**04**
5.	What is Google API? How to use the Google chart API to a bar chart. **[LJIET]**	**05**
6.	How to work with Google API. Give an example of pie chart in Google API. **[LJIET]**	**07**
7.	Write a code for creating a simple column chart without using Google API. **[LJIET]**	**07**
8.	How can we use Google API? Explain how we animate our chart using Google API with the help of an example. **[LJIET]**	**07**
9.	What are the important features of Google chart library? **[LJIET]**	**07**
10.	Write code to plot stacked bar chart using Google API. **[LJIET]**	**07**
	UNIT NO 4 : Introduction to D3.js:	
	TOPIC 1: Getting setup with D3, Making selections, changing selection's attribute, Loading and filtering External data : Building a graphic that uses all of the population distribution data, Data formats you can use with D3	
Sr. No	**SHORT QUESTIONS**	**Marks**
1.	Explain what is d3.js? **[LJIET]**	**01**
2.	How D3.js identify on which elements to operate? **[LJIET]**	**01**
3.	JQuery provides data-driven functionality of D3. True / False? **[LJIET]**	**01**
4.	What is DOM? What is use of DOM and SVG in D3? **[LJIET]**	**01**
Sr. No	**DESCRIPTIVE QUESTIONS**	**Marks**
1.	Differentiate following: 2) Linear Scale and Ordinal Scale **(Jun 2022) [LJIET]**	**02**
2.	Define following Term : Visualization, Filtering, Axes **(Jun 2022) [LJIET]**	**03**

3.	Define Data binding. What is the use of text( ). **(Jun 2022) [LJIET]**	**03**
4.	How to use selection in D3.js? **(Jun 2022) [LJIET]**	**03**
5.	Explain select and append command in D3.js with example **(Jun 2022) [LJIET]**	**04**
6.	Describe the changing method of D3.js with example. **(Jun 2022) [LJIET]**	**03**
7.	List down installation setup steps of D3. **(Dec 2022) [LJIET]**	**07**
8.	Which Data formats you can use with D3? **(Dec 2022) [LJIET]**	**03**
9.	Develop Following Program Using HTML5 and D3.js and Canvas.js Showing the Data as a column chart for four age group**. (Dec 2022) [LJIET]**	**07**
10.	Explain different ways to create selections **[LJIET]**	**07**
11.	Explain with example how does attr() works. **[LJIET]**	**03**
12.	Explain filters in D3.js **[LJIET]**	**04**
13.	Attempt following. 1. Write a snippet to obtain a red circle with radius 5 and stroke black. 2. How attr() are used to apply classes and style rules. **[LJIET]**	**07**
14.	Explain the commands select, selectAll, append in D3.js with example **[LJIET]**	**07**
15.	Write a snippet to add "Best of Luck" on a green circle with red color, arial font, size 20 in D3.js. **[LJIET]**	**07**
16.	What are transitions? How they work? How they can be chained together? **[LJIET]**	**04**
	TOPIC 2: Creating a server to upload your data, D3's function for loading data, Dealing with Asynchronous requests, Loading and formatting Large Data Sets	
Sr. No	**SHORT QUESTIONS**	**Marks**
1.	Does D3 support .xls and .xlsx ? **[LJIET]**	**01**
Sr. No	**DESCRIPTIVE QUESTIONS**	**Marks**
1.	Explain Various Functions in D3.js **(Jun 2022) [LJIET]**	**07**
2.	How can we deal with Asynchronous requests? **(Dec 2022) [LJIET]**	**03**
3.	What is asynchronous request? **[LJIET]**	**03**
4.	Explain the steps how to create a server to upload your data. Describe D3's function for loading data. **[LJIET]**	**07**
5.	Enlist few data formats and their corresponding functions that can be used with D3. **[LJIET]**	**04**
6.	Write code snippet to load and filter large data set. **[LJIET]**	**07**
	UNIT NO 5 : Advanced Data Visualization:	
	TOPIC 1: Making charts interactive and Animated: Data joins, updates and exits, interactive buttons, Updating charts, Adding transactions, using keys	
Sr. No	**SHORT QUESTIONS**	**Marks**
1.	Explain .data() in d3.js with example. **[LJIET]**	**01**
2.	Explain .enter() in d3.js with example. **[LJIET]**	**01**
3.	Explain .remove() in d3.js with example. **[LJIET]**	**01**
Sr. No	**DESCRIPTIVE QUESTIONS**	**Marks**
1.	What is the Transaction? How to apply Transaction? **(Jun 2022) [LJIET]**	**04**
2.	Explain data-joins in D3.js with example. **(Jun 2022) [LJIET]**	**07**

3.	Explain Select all and exit command in D3.js with example. **(Jun 2022) [LJIET]**	**04**
4.	How to make interactive button? Explain with example. **(Jun 2022) [LJIET]**	**04**
5.	Explain steps to create and upload data in D3. **(Dec 2022) [LJIET]**	**07**
6.	Explain Data joins, interactive buttons with examples. **(Dec 2022) [LJIET]**	**04**
7.	How to make interactive button and updating chart? **[LJIET]**	**07**
8.	Write short note on enter phase. **[LJIET]**	**04**
9.	Explain update and exit phase with example. **[LJIET]**	**07**
10.	How to make button clickable in D3? Explain with example. **[LJIET]**	**04**
11.	Explain adding transitions using D3 with example. **[LJIET]**	**03**
12.	What is selection? Explain enter selection, update selection and exit selection. **[LJIET]**	**07**
	TOPIC 2: Adding a Play Button: wrapping the update phase in a function, Adding a Play button to the page, Making the Play button go, Allow the user to interrupt the play, sequence	
Sr. No	**SHORT QUESTIONS**	**Marks**
1.	Explain setInterval() function with example. **[LJIET]**	**01**
2.	Explain clearInterval() function with example. **[LJIET]**	**01**
Sr. No	**DESCRIPTIVE QUESTIONS**	**Marks**
1.	How to add Play button to the page? Explain with example. **(Jun 2022) [LJIET]**	**04**
2.	Explain how you can allow the user to interrupt the play? **(Dec 2022) [LJIET]**	**04**
3.	Write code to add play button to run through charts of different year. **[LJIET]**	**07**
UNIT NO 6 : Information Dashboard Design:		
	TOPIC 1: Introduction, Dashboard design issues and assessment of needs, Considerations for designing dashboard-visual perception, Achieving eloquence, Advantages of Graphics _Library of Graphs,	
Sr. No	**SHORT QUESTIONS**	**Marks**
1.	Define Dashboard. **[LJIET]**	**01**
2.	Define the Principle of Proximity. **[LJIET]**	**01**
3.	Define the Principle of Similarity. **[LJIET]**	**01**
4.	Define the Principle of Enclosure. **[LJIET]**	**01**
5.	Define the Principle of Closure. **[LJIET]**	**01**
6.	Define the Principle of Continuity. **[LJIET]**	**01**
7.	Define the Principle of Connection. **[LJIET]**	**01**
Sr. No	**DESCRIPTIVE QUESTIONS**	**Marks**
1.	Explain Dashboard with example. **(Jun 2022) [LJIET]**	**07**
2.	Enlist Dashboard design issues in Data Visualization. **(Dec 2022) [LJIET]**	**03**
3.	Define Dashboard? List common mistakes in dashboard design. **[LJIET]**	**04**
4.	Explain any three mistakes in dashboard design. **[LJIET]**	**07**
5.	Write a short note on flaw in dashboard design –"Exceeding the boundaries of a single screen." **[LJIET]**	**07**
4.	Write a short note on flaw in dashboard design –"Supplying inadequate context for the data." **[LJIET]**	**04**

5.	Write a short note on flaw in dashboard design –"Choosing inappropriate display media." **[LJIET]**	**03**
6.	List and explain Gestalt Principles of Visual Perception. **[LJIET]**	**07**
7.	Describe characteristics of well-designed dashboard. **[LJIET]**	**04**
8.	Explain Key Goals in visual design process. **[LJIET]**	**07**
9.	List out the advantages of graphics library. **[LJIET]**	**03**
10.	Discuss the advantages of graphics library. **[LJIET]**	**07**
	TOPIC 2: Designing Bullet Graphs, Designing Spark-lines, Dashboard Display Media, Critical Design Practices, Putting it all together - Unveiling the dashboard.	
Sr. No	**SHORT QUESTIONS**	**Marks**
1.	Define Bullet Graph. **[LJIET]**	**01**
2.	What is sparklines? **[LJIET]**	**01**
3.	For what purpose sparklines are designed? **[LJIET]**	**01**
Sr. No	**DESCRIPTIVE QUESTIONS**	**Marks**
1.	Write a short note on designing bullet graph. **[LJIET]**	**07**
2.	Write a short note on designing sparklines. **[LJIET]**	**04**
3.	Explain the points need to be considered while deciding how to organise data on the computer. **[LJIET]**	**07**
4.	Explain the guidelines which are helpful to achieve a simple aesthetic without compromising the data. **[LJIET]**	**04**
5.	How to make viewing experience aesthetically pleasing while designing a dashboard? **[LJIET]**	**04**