

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER– VI EXAMINATION – SUMMER 2026****Subject Code:3160717****Date:26-05-2026****Subject Name:Data Visualization****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

|            |            |                                                                                                             | <b>MARKS</b> |
|------------|------------|-------------------------------------------------------------------------------------------------------------|--------------|
| <b>Q.1</b> | <b>(a)</b> | Define: (1) Visualization (2) Scale (3) Infographics                                                        | <b>03</b>    |
|            | <b>(b)</b> | Differentiate following:<br>1) Canvas and SVG<br>2) Linear Scale and Ordinal Scale                          | <b>04</b>    |
|            | <b>(c)</b> | Define Document Object Model (DOM). Write a code to read a XML file and display its content on the browser. | <b>07</b>    |
|            |            |                                                                                                             |              |
| <b>Q.2</b> | <b>(a)</b> | Why HTML5 is so important to data visualization?                                                            | <b>03</b>    |
|            | <b>(b)</b> | Describe Simultaneous acquisition and visualization.                                                        | <b>04</b>    |
|            | <b>(c)</b> | Write a code to display both Pie chart and Column chart using Google API in single browser window.          | <b>07</b>    |
|            |            | <b>OR</b>                                                                                                   |              |
|            | <b>(c)</b> | What is charting Primitives? List all types of Charts and explain Pie Chart and Area Chart.                 | <b>07</b>    |
| <b>Q.3</b> | <b>(a)</b> | What is D3.js? Explain in short.                                                                            | <b>03</b>    |
|            | <b>(b)</b> | How the HTML5 canvas differs from SVG graphics tools.                                                       | <b>04</b>    |
|            | <b>(c)</b> | Write D3.js code to demonstrate data binding and data loading.                                              | <b>07</b>    |
|            |            | <b>OR</b>                                                                                                   |              |
| <b>Q.3</b> | <b>(a)</b> | Differentiate text file with JSON file                                                                      | <b>03</b>    |
|            | <b>(b)</b> | What is dynamic highlighting? Explain it using suitable code example.                                       | <b>04</b>    |
|            | <b>(c)</b> | List down installation setup steps of D3.js.                                                                | <b>07</b>    |
|            |            |                                                                                                             |              |
| <b>Q.4</b> | <b>(a)</b> | How to use selection in D3.js?                                                                              | <b>03</b>    |
|            | <b>(b)</b> | Explain select and append command in D3.js with example                                                     | <b>04</b>    |
|            | <b>(c)</b> | Explain steps to create and upload data in D3.                                                              | <b>07</b>    |
|            |            | <b>OR</b>                                                                                                   |              |
| <b>Q.4</b> | <b>(a)</b> | Differentiate between xml file and csv file                                                                 | <b>03</b>    |
|            | <b>(b)</b> | How to read JSON file? Explain with example.                                                                | <b>04</b>    |
|            | <b>(c)</b> | Describe Loading and Filtering External Data in data visualization                                          | <b>07</b>    |
|            |            |                                                                                                             |              |
| <b>Q.5</b> | <b>(a)</b> | Explain Scalable Vector Graphics.                                                                           | <b>03</b>    |
|            | <b>(b)</b> | How do you update charts? Explain in short.                                                                 | <b>04</b>    |
|            | <b>(c)</b> | What are different considerations associated with visual perception of information dashboard.               | <b>07</b>    |
|            |            |                                                                                                             |              |

**OR**

- Q.5**
- |            |                                                                                                     |           |
|------------|-----------------------------------------------------------------------------------------------------|-----------|
| <b>(a)</b> | Discuss design issues of Dashboard in Data Visualization.                                           | <b>03</b> |
| <b>(b)</b> | How to make interactive button? Explain with example.                                               | <b>04</b> |
| <b>(c)</b> | What is information Dashboard? Create a sketch/wireframe of any hypothetical educational institute. | <b>07</b> |

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