

Name: Enrolment No:			
UPES End Semester Examination, December 2025 Course: Advanced Web Technologies Semester: III Program: BCA Time: 03 hrs. Course Code: CSEG2071 Max. Marks: 100 Instructions: <i>Start Each Answer on New Page, Write Question No. Clearly on Left Margin.</i> <i>Write your Batch on Top of Answer Sheet. State your assumptions if any.</i>			
SECTION A (5Qx4M=20Marks)			
S. No.	Question	Marks	CO
Q1	What are jQuery selectors? Write any four selectors with examples showing selecting elements by class, ID, attribute, and position.	4	CO1
Q2	Describe the role of AngularJS controllers. How does \$scope connect the controller and the view? Provide an example.	4	CO1
Q3	What is a cookie in web applications? Explain its purpose, structure, and how cookies maintain client-side state.	4	CO3
Q4	What is the purpose of the Node.js Event Loop? Explain how it processes asynchronous operations.	4	CO2
Q5	Explain MongoDB collections and documents. How do they differ from tables and rows in relational databases?	4	CO3
SECTION B (4Qx10M= 40 Marks)			
Q6	Write code using D3.js that fetches an array of strings from a URL using fetch(), and displays them inside a using D3 enter–update–exit selection	3+7	CO4
Q7	Explain Node.js Modules in detail. Differentiate between built-in, local, and third-party modules. Also describe the sequence of commands to initialize a Node.js Express web server, including required development/deployment dependencies. Provide example code.	2+3+5	CO2
Q8	Explain why session management is required in web applications. Describe different strategies for maintaining sessions. Also explain cookies, their structure, and important security-related properties such as HttpOnly, Secure, SameSite, and expiration.	3+3+4	CO3
Q9	a) Explain jQuery AJAX methods (\$.ajax(), \$.get(), \$.post()). Demonstrate how to fetch JSON from a URL and update part of the page UI. Include event handling for success and error.	4+6	CO1
OR			

	b) Explain AngularJS directives in detail. Describe built-in directives (ng-model, ng-repeat, ng-show, ng-disabled) and create an example demonstrating at least two of them.		
SECTION-C (2Qx20M=40 Marks)			
Q10	a) Explain in detail the enter–update–exit pattern in D3.js. Describe the role of selectAll(), .data(), .enter(), .merge(), .exit(), and .remove(). Explain how key functions affect data binding. b) Write complete D3 code to generate a vertical bar chart from a numeric array, with bars animating from height 0 to their actual value using a 1sec transition. Include x/y scales and a left axis. (<i>Assume data such as [120, 150, 30, 400].</i>)	3+4+4 + 10	CO4
Q11	a) Describe the design of a simple Notes application (similar to ToDo). Explain UI components, event flow, edit/update/delete logic, and how browser storage preserves data after closing the browser. b) Write complete HTML + JS code (jQuery/AngularJS/D3) that implements a Notes app with add, edit, delete features and stores data using localStorage. (a+b) OR (c+d) c) Explain the architecture of MongoDB Atlas and how it enables cloud-based document storage. Compare the Node.js process model with the traditional web server model. d) Write Node.js + Mongoose code to connect to MongoDB Atlas, define a schema (e.g., Student or Task), and demonstrate save, find, update, delete operations using async/await.	4+4+2 + 10 , 5+5 + 4+4+3	CO2/ CO3