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**BRAINWARE UNIVERSITY**

Library
Brainware University
398, Ramkrishnapur Road, Barasat
Kolkata, West Bengal-700125

Term End Examination 2025-2026
Programme – M.Tech.(CSE)-DS-2025
Course Name – Advanced Web Technology
Course Code - MTD27505 (T)
(Semester II)

Full Marks : 40**Time : 2:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 10=10

1. Choose the correct alternative from the following :

- (i) Identify the CSS declaration that enables Flexbox layout.
 - a) display: block
 - b) display: grid
 - c) display: flex
 - d) position: flex
- (ii) Select the JavaScript method used for accessing an element using its ID.
 - a) getElement ()
 - b) querySelectorAll ()
 - c) getElementById ()
 - d) selectById ()
- (iii) Select the Bootstrap breakpoint intended for medium-sized devices.
 - a) xs
 - b) sm
 - c) md
 - d) lg
- (iv) Explain the purpose of deployment optimization techniques.
 - a) Increase code size
 - b) Improve performance and reliability
 - c) Add UI features
 - d) Remove security
- (v) Explain the significance of environment variables during deployment.
 - a) UI styling
 - b) Configuration management
 - c) Image optimization
 - d) User authentication
- (vi) Explain the main purpose of the HTTP POST method in web applications
 - a) Retrieve data
 - b) Update partial data
 - c) Send data to server
 - d) Delete resources
- (vii) Use a suitable approach to verify application functionality after deployment on a local server
 - a) Ignore server logs
 - b) Deploy without testing
 - c) Stop the server
 - d) Perform post-deployment testing
- (viii) Analyze the impact of Virtual DOM on rendering performance in React applications.
 - a) Direct DOM manipulation improves speed
 - b) Virtual DOM minimizes real DOM updates through diffing

- c) Virtual DOM increases server load d) Virtual DOM removes need for state management
- (ix) Evaluate the suitability of useReducer over useState for complex state logic in React.
- a) useState handles complex transitions better b) useReducer centralizes and manages complex state updates efficiently
- c) useReducer avoids re-rendering completely d) useState replaces Redux automatically
- (x) Design a React component structure to optimize reusability across multiple modules.
- a) Place all logic inside one component b) Use reusable functional components with props and composition
- c) Avoid props and use global variables d) Use inline HTML without components

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Explain the significance of combining HTML5, CSS3, and JavaScript. (3)
3. Explain the purpose of Node.js in backend development. (3)
4. Apply the concept of DOM manipulation to update webpage content dynamically without reloading the page. (3)
5. Analyze how media queries support mobile-first design principles in responsive web development. (3)
6. Analyze the importance of HTTPS in secure data transmission. (3)

OR

- Analyze the role of authentication tokens in securing stateless web applications. (3)

Group-C

(Long Answer Type Questions)

5 x 3=15

7. Apply responsive design principles using Flexbox and CSS Grid to structure a modern web page layout. (5)
8. Analyze the role of hooks in improving React code reusability. (5)
9. Analyze the role of JSON Web Tokens (JWT) in securing stateless authentication systems. (5)

OR

- Analyze the importance of image optimization techniques in modern web applications. (5)

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