Indian Institute of Information Technology, Lucknow

End Semester Exam

Subject - Web Design & Application Development-I

Paper Code- WDA1202C

Max Marks: 60, Max Time: 3 Hours **Date: 29-11-2024**

Instructions:

1. **All questions are compulsory.**
2. **Write your answers briefly and precisely.**
3. **Code and Theory** tags mentioned against every question for your response type.

PART-A [35 Marks]

Q1. Short Answers - **(Theory)[1*10=10Marks]**

a) What is the role of **@keyframes** in CSS?
b) How can you delay the start of a CSS animation?
c) What CSS properties control the **speed** and **iteration count** of an animation?
d) What does the alt attribute in the **<img>** tag do?
e) What is the use of the action attribute in the **<form>** tag?
f) What does the **placeholder** attribute in a <input> tag do?
g) Which Bootstrap class is used to create a responsive image?
h) What is the difference between **<section> and ** tags in HTML?
i) What is the purpose of the **col** class in Bootstrap?
j) What is the difference between **== and ===** in JavaScript?

Q2. Answer the following- **(Theory) [2*5=10Marks]**

a) Write the CSS code to make an element rotate 360 degrees continuously.
b) How does the position property work in CSS? Describe the differences between static, relative, absolute, and fixed positions with examples.
c) What is the purpose of the z-index property in CSS? Explain with an example where elements overlap.
d) Using Bootstrap, create a responsive card layout with three cards in a row on large screens and one card per row on smaller screens.
e) Explain the difference between container and container-fluid in Bootstrap with examples.

Q3. In the context of HTTPS, how is RSA used in the SSL/TLS handshake process? Explain how RSA is used to securely exchange the symmetric key used for AES encryption. **[5 Marks] (Theory)**

Q4. What is a REST API, and how does it utilize the HTTP protocol for communication? Explain the importance of HTTP methods (GET, POST, PUT, DELETE) in designing RESTful services, and how REST APIs interact with client applications. **[5 Marks] (Theory)**

Q5. Design a webpage using Bootstrap's grid system that: **[5 Marks] (Code)**

1.Displays three cards in a row on large screens.
2.Stacks the cards vertically on screens smaller than 768px.
3.Each card includes an image, a title, and a button.
Write the HTML and CSS code for this layout.
(Hint: Use Bootstrap's grid classes like col-lg-4 and col-sm-12.)

PART-B [25 Marks]

Q6. Create a registration form that: **[7 Marks] (Code)**

1.Contains input fields for a username, email, and password.
2.Validates the email format when the user clicks the "Register" button.
3.Displays an error message below the email field if the format is invalid.
4.Changes the border color of the input field to red for invalid entries and green for valid ones.
Write the HTML, CSS, and JavaScript code to implement this.
(Hint: Use pattern attribute, addEventListener, and class manipulation.)

Q7. Design a webpage with the following requirements: **[8 Marks](Code)**

1.A sticky footer that always stays at the bottom of the viewport when content is short.
2.The footer should move down as the content expands.
3.Include a button that, when clicked, appends paragraphs to the page content, making it scrollable.
Write the HTML, CSS, and JavaScript to implement this functionality.
(Hint: Use flexbox for layout and appendChild for adding elements dynamically.)

Q8. Create a webpage where users can dynamically add items to a list. The webpage should: **[10 Marks] (Code)**

1.Include an input field and a button.
2.Allow users to type a list item in the input field and add it to an unordered list by clicking the button.
3.Clear the input field after the item is added.
4.Allow users to remove an item from the list by clicking on it.
Write the HTML, CSS, and JavaScript code to implement this functionality.
(Hint: Use createElement, appendChild, addEventListener, and

Bonus Question

Q9: You are designing a webpage where a "Back to Top" button should appear after scrolling beyond the third page of the website. The button, when clicked, should smoothly scroll back to the top of the page. **[5Marks](Code)**

(a) Write the JavaScript code to implement the following functionalities:

1. Detect when the user has scrolled beyond the height of three pages.
2. Display a "Back to Top" button when the condition is met and hide it otherwise.
3. Add functionality to smoothly scroll to the top of the page when the button is clicked.

(b) What is the significance of the following methods and properties in this solution? **(Theory)**

1. window.innerHeight
2. window.scrollY
3. addEventListener
4. window.scrollTo (specifically with the behavior: 'smooth' option)

(Hint: These functions and properties are used to calculate the scroll position, monitor events, and implement smooth scrolling.)