



## COMSATS UNIVERSITY ISLAMABAD (CUI)

DEPARTMENT OF COMPUTER SCIENCE  
TERMINAL EXAMINATION FALL - 2022  
BS (CS) – V AND BS (SE) – VI

Course: CSC336-Web Technologies

Instructor: Mr. Hasnain Iqbal, Ms. Saadia Maqbool

Maximum Marks: 50

Dated: January 30, 2023

Time Allowed: 180 Minutes

- All questions are self-explanatory and require no further explanations during exam time.
- Make sure that you have signed the attendance sheet before leaving the examination room.
- Return the question paper along with the answer sheet.
- Attempt all questions.

### (CLO – 1: Classify web architectures and related applications.)

Q.# 1. Answer the following questions:

[5 Marks: 3+2]

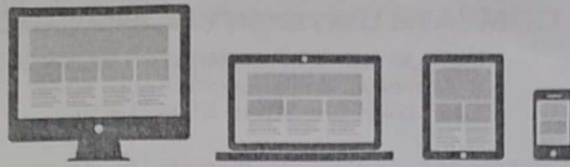
- Explain the major differences between Web 1.0, Web 2.0, and Web 3.0 in your own words with appropriate examples.
- The HTML 5.0 added tags like `<article>`, `<section>`, `<footer>`, and `<summary>` that could have easily been implemented in older HTML using a div tag with a class attribute. What is the possible usage of these new semantic tags.

### (CLO – 2: Demonstrate the capabilities for developing professional front-end using client-side technologies.)

Q.# 2. Write HTML and CSS code for the navigation menu by using Flex and Internal CSS with 7 links as shown in the given sample. The navigation menu background color is green, the border size is 3px, and the border style is solid. Whereas the links' background color is red, the border size is 2px, the border style is dotted, the margin is 10px, the width is 100px, the text alignment is center, the line height is 50px, and the font size is 16px. [5 Marks]



Q.# 3. Write the **structure only** of the code to create a responsive layout using either Media Queries or Bootstrap grid system, that is rendered as 4 column layout in extra-large and above devices (viewport  $\geq 1200\text{px}$ ), and 3 column layout in large devices ( $992\text{px} \leq \text{viewport} < 1200\text{px}$ ), whereas 2 column layout in medium devices ( $768\text{px} \leq \text{viewport} < 992\text{px}$ ), and 1 column layout in small and extra-small devices (viewport  $< 768\text{px}$ ) as shown in figure. The layout also contains a banner which spans the whole width of the screen no matter the device size. [5 Marks]



**Q.# 4.** You are given the following HTML document 'code a'. Write JavaScript code using the DOM to make the document look like 'code b'. **You may NOT use assignment to the innerHTML in your solution.** [3 Marks]

**Code a:**

```
<html>
<head>
</head>
<body>
  <div id="container"></div>
</body>
</html>
```

**Code b:**

```
<html>
<head>
</head>
<body>
  <div id="container">
    <p id="mySpan" style="visibility:
hidden;">new paragraph</p>
  </div>
</body>
</html>
```

**Q.# 5.** Consider a weather web application that connects to a weather API (consider an API that returns you all the weather information of some default location in the form of JSON string). Create a dummy JSON string of such kind You need to show the information as shown in the figure below. Based upon different weather conditions: haze, cloudy, sunny, rain showers, use a different background image and also show the fetched values on the screen. [4 Marks: 1+3]



**Q.# 6.** Write a regular expression to validate an IP address of the form x.x.x.x where x= 0-255. Hint: optional number ranges can be specified and validated e.g. putting 25[0-4] means any number between 250-254 are valid. Pipe '|' can be used to specify multiple options a|b means either 'a' is valid or 'b' is valid. [3 Marks]

**(CLO – 3: illustrate the concepts of server-side technologies for secure database interactions.)**

**Q.# 7.** Consider a 'shopping cart' that your web application is managing. When a user changes the quantity of any product, the page sends an asynchronous query to the server using AJAX. Create an XMLHttpRequest object in AJAX and define a callback function that should contain code to execute when the response is ready. After that, send a request to a server by using the opening and sending methods of the XMLHttpRequest object. [5 Marks]

**Q.# 8.** Consider a LMS web application where a teacher can upload assignments and the students can view and submit their work. You are required to provide the following for this Laravel project: [20 Marks: 5+5+5+3+2]

- Write the complete 'Routes' for the given scenario, include routes for student, teacher, and/or assignment appropriately.
- Use appropriate HTTP request methods i.e. GET, POST, PUT, PATCH, DELETE in your specified routes.
- Provide the controller code for all the routes specified (write proper controller classes). Implement all different functions that include upload, edit, view, delete assignments on the teacher side, and view, submit assignment on the student side. Write proper db queries or use models.
- Create the view for the form where teacher is able to upload an assignment (put as many options as you can) as shown in the figure below.
- Save the data to an appropriate database table, also note submissions done by students in a db table. Provide schemas for the associated 2-3 tables.
- In the login route, set session variables for the users (student and teacher), you don't have to authenticate the students. Use proper Laravel syntax for setting session data.
- In the logout route clear all session data stored for a particular user.

New assignment

Discard

Save

Title (required)

Enter title

Instructions

Enter instructions

📎 Attach

Points

No points

Assign to

WebTechnologiess-6A&B-FA22



Date due

Wed, Jan 11, 2023



\*\*\*\*End of Question paper\*\*\*\*