

Department of Information Technology, Jadavpur University
Bachelor of Information Technology 3rd year, 1st Semester Examination – 2024
Subject: **Web Technologies-I, Time: 3 hours**

Different parts of the same question should be answered together.

Full Marks: 100

CO1 [20]	<p>[1] Answer either (a) or (b) in this block</p> <p>(a) [4+8+8]</p> <p>i) Write the advantages and disadvantages of proxy servers.</p> <p>ii) Describe with concrete examples how you can make HTTP secured.</p> <p>iii) Write the format of a HTTP request message.</p> <p>(b) [4+8+8]</p> <p>i) What are Safe and unsafe methods?</p> <p>ii) Suppose URL's of ten thousand image files are stored in a file. Write the pseudo-code to download all these images.</p> <p>iii) Write the format of a HTTP response message.</p>
CO2 [20]	<p>[2] Answer either (a) or (b) in this block</p> <p>(a) [4+8+8]</p> <p>i) What is the use of hidden field in a form? Explain with suitable example(s).</p> <p>ii) Demonstrate with examples <i>inline</i>, <i>internal</i>, and <i>external</i> CSS.</p> <p>iii) Demonstrate with suitable example how events are handled in HTML.</p> <p>(b) [4+8+8]</p> <p>i) What benefits does an external style sheet bring? How do you refer an external CSS file from a HTML page?</p> <p>ii) Write a JavaScript function to display all tags used in a HTML document.</p> <p>iii) Suppose a form is to be submitted when both login and password fields are non-empty. Demonstrate with suitable example how you will do this.</p>
CO3 [20]	<p>[3] Answer either (a) or (b) in this block</p> <p>(a) [4+8+8]</p> <p>i) What do you mean by synchronous and asynchronous requests in AJAX? How do you specify them?</p> <p>ii) A "lazy loading" is a method where JavaScript code is loaded on demand. Illustrate with a suitable example.</p> <p>i) Explain with suitable example, the closure property in JavaScript?</p> <p>(b) [4+8+8]</p> <p>i) Write the importance of AJAX technology.</p> <p>ii) Illustrate with suitable example(s) how you can manipulate the DOM tree using JavaScript.</p> <p>iii) Explain with suitable example, the callback in JavaScript?</p>

<p>CO4 [20]</p>	<p>[4] Answer either (a) or (b) in this block</p> <p>(a) [4+8+8]</p> <p>i) What is the difference between web storage and cookies?</p> <p>ii) Compare HTTP, WebSocket</p> <p>iii) Discuss the mechanism used in SSE for handling lost updates.</p> <p>(b) [4+8+8]</p> <p>i) Compare HTTP and and SSE.</p> <p>ii) Write with suitable examples the concept of transferable objects.</p> <p>iii) Compare polling and pushing mechanism. How will you overcome the problems of polling?</p>
<p>CO5 [20]</p>	<p>[5] Answer either (a) or (b) in this block</p> <p>(a) [4+8+8]</p> <p>i) Compare and contrast DTD and Schema</p> <p>ii) A typical Remote Procedure Call (RPC) protocol encodes method invocation information and method response as XML files. Write sample XML files for this protocol. Also state the assumptions you made. Write a schema for the above XML documents.</p> <p>iii) Consider the following XML document (HDD.xml) snippet:</p> <pre><?xml version='1.0'?> <store> <HDD type='ATA'> <make>Samsung</make> <capacity>80</capacity> <speed>7200</speed> <price>1600</price> </HDD> ... </store></pre> <p>Write XQuery expressions to extract the following textual information from the above XML document.</p> <p>i. Find manufacturers that manufacture 160 GB HDD</p> <p>ii. Sort HDDs by their prices.</p> <p>(b) [4+8+8]</p> <p>i) Compare and contrast well-formed and valid XML documents.</p> <p>ii) A typical Role Based Access Control (RBAC), a role is a collection of permissions applied to the users having unique login name and password. Write a sample XML file for this purpose. Also state the assumptions you made. Write a schema for the above XML documents.</p> <p>iii) Consider the following XML document (Monitor.xml) snippet:</p> <pre><store> <monitor type='LCD' color='yes'> <make>LG</make> <price>7500</price></pre>

	<pre> <size>15</size> <resolution>1280x800</resolution> </monitor> ... </store> </pre> <p>Write XQuery expressions to extract the following textual information from the above XML document.</p> <ol style="list-style-type: none"> i. Find manufacturers that manufacture LED monitors ii. Sort monitors by their size.
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CO1: **Describe** the basic components of the web, its architecture and fundamental application layer web protocols. (K2)

CO2: **Demonstrate** HTML and CSS and **apply** them to **develop** basic web pages (K3)

CO3: **Illustrate** JavaScript programming language and **use** it to **develop** simple scripts (K3)

CO4: **Apply** HTML5-related technologies to **develop** dynamic and interactive web pages (K3)

CO5: **Illustrate** XML, its related technologies and **use** them in the web (K4)
