

Department of Information Technology, Jadavpur University
Bachelor of Information Technology 3rd year, 1st Semester Examination – 2025
Subject: **Web Technologies-I, Time: 3 hours**

Different parts of the same question should be answered together.

Full Marks: 100

CO1 [20]	[1] Answer either (a) or (b) in this block [4+8+8] (a) i) Compare HTTP1.0 and HTTP1.1 ii) Explain the types of the header field in HTTP with suitable examples. iii) Write a sample HTTP request message for the URL. Identify the different parts of the following URL. http://www.it.jusl.ac.in:8765/result.jsp?name=student&sort=byMarks (b) [4+8+8] i) Why is HTTP known as a stateless protocol? Write advantages and disadvantages of the stateless protocol. ii) Is it possible to transfer a resource from the client computer to the web server? If yes, how? iii) Suppose a resource that was requested by the client is not found by the server. Write a sample response message for it.
CO2 [20]	[2] Answer either (a) or (b) in this block [4+8+8] (a) i) Write with suitable examples, the function of <form> tag in HTML. ii) Describe with examples how to use pseudo classes of the <a> element. iii) Demonstrate with suitable example how events are handled in HTML. (b) [4+8+8] i) How will you use an array as a stack in JavaScript? ii) What are Meta characters in regular expression? 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.
CO3 [20]	[3] Answer either (a) or (b) in this block [4+8+8] (a) i) What do you mean by synchronous and asynchronous requests in AJAX? How do you specify them? ii) Illustrate how JavaScript Object literal can be used to store and retrieve data. iii) Write with suitable examples, the role of for-in construct in JavaScript. (b) [4+8+8] i) Write the importance of AJAX technology. ii) Illustrate with suitable example(s) the purpose of DOM iii) How to handle JavaScript Events in HTML?

CO4 [20]	[4] Answer either (a) or (b) in this block (a) [4+8+8] i) Mention some other tasks of a proxy server. ii) Compare HTTP, WebSocket iii) Compare dedicated and shared worker. What are the limitations of HTML5 Web Worker? (b) [4+8+8] i) Write with suitable examples the concept of “Dynamic script loading”. ii) How to add Scalable Vector Graphics to your web page? iii) What is HTTP tunneling? Explain with a suitable example.
CO5 [20]	[5] Answer either (a) or (b) in this block (a) [4+8+8] i) What do you understand about XML Namespaces? 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. iii) A book has exactly one title, one or more chapters, one or more authors, a price, and an ISBN number. An author has a first name, an optional middle name, and a last name. A chapter consists of one or more paragraphs. Write a DTD for this scenario. (b) [4+8+8] i) Write the differences between HTML and XML. ii) Illustrate XQuery FLWOR Expression with suitable examples. iii) Consider the following scenario: An employee may have zero or more credit cards, one or more bank accounts, and exactly one PAN number. Write an element declaration in schema for this element employee.

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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)
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