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**NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA**  
**(An Autonomous Institute Affiliated to AKTU, Lucknow)**

**M.Tech (Integrated)**

**SEM: V - THEORY EXAMINATION (2024-2025)**

**Subject: Web Technology**

**Time: 3 Hours**

**Max. Marks:100**

**General Instructions:**

**IMP:** Verify that you have received question paper with correct course, code, branch etc.

1. *This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*
2. *Maximum marks for each question are indicated on right hand side of each question.*
3. *Illustrate your answers with neat sketches wherever necessary.*
4. *Assume suitable data if necessary.*
5. *Preferably, write the answers in sequential order.*
6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

**SECTION – A**

**20**

1. Attempt all parts:-

- 1-a. Which of the following is NOT a key technological advancement that led to the development of the Internet? (CO1, K5) **1**
- (a) Packet switching
  - (b) ARPANET
  - (c) TCP/IP
  - (d) ENIAC
- 1-b. In a client-server architecture, what is the role of the client? (CO1, K5) **1**
- (a) To process requests and send responses
  - (b) To store and manage data
  - (c) To request services from the server
  - (d) To control network traffic
- 1-c. What is the difference between <div> and <span> tags in HTML? (CO2, K3) **1**
- (a) <div> is an inline element, while <span> is a block-level element.
  - (b) <span> is an inline element, while <div> is a block-level element.

- (c) Both are block-level elements.
  - (d) Both are inline elements.
- 1-d. Which of the following is NOT a valid XML declaration? 1  
(CO2, K2)
- (a) `<?xml version="1.0" encoding="UTF-8"?>`
  - (b) `<?xml version="1.1" encoding="ISO-8859-1"?>`
  - (c) `<?xml version="1.0"?>`
  - (d) `<?xml version="1.0" encoding="utf-8"?>`
- 1-e. Which CSS selector would target all `<p>` elements within a `<div>` with the ID "myDiv"? (CO3, K2) 1
- (a) `#myDiv p`
  - (b) `div p`
  - (c) `myDiv p`
  - (d) `div#myDiv p`
- 1-f. What is the purpose of the `grid-template-columns` property? 1  
(CO3, K2)
- (a) To define the number of grid columns.
  - (b) To define the size of grid columns.
  - (c) To define the gap between grid columns.
  - (d) All of the above.
- 1-g. What is the difference between `let` and `const` keywords in JavaScript? 1  
(CO4, K3)
- (a) `let` declares a block-scoped variable, while `const` declares a function-scoped variable.
  - (b) `let` declares a mutable variable, while `const` declares an immutable variable.
  - (c) `let` is used for declaring variables, while `const` is used for declaring constants.
  - (d) There is no difference between `let` and `const`.
- 1-h. What is the main purpose of TypeScript? (CO4, K4) 1
- (a) To add dynamic typing to JavaScript
  - (b) To add static typing to JavaScript
  - (c) To compile JavaScript code into machine code
  - (d) To create cross-platform applications
- 1-i. What is the purpose of the `_construct()` method in PHP? (CO5, K2) 1
- (a) It is used to create a new object.
  - (b) It is used to initialize object properties.
  - (c) It is used to destroy an object.

(d) It is used to clone an object.

- 1-j. What is the purpose of the try-catch block in PHP? (CO5, K2) 1
- (a) It is used to handle exceptions.
  - (b) It is used to debug code.
  - (c) It is used to optimize code.
  - (d) It is used to create custom functions.
2. Attempt all parts:-
- 2.a. Briefly explain the concept of client-server architecture. (CO1, K5) 2
- 2.b. Discuss the purpose of XML namespaces and how are they used to avoid element name conflicts? (CO2, K5) 2
- 2.c. How can you customize Bootstrap's default styles and components using CSS? (CO3, K1) 2
- 2.d. Differentiate between a regular function and an arrow function in JavaScript? (CO4, K3) 2
- 2.e. Explain the security considerations when working with file uploads in PHP? (CO5, K5) 2

### **SECTION – B**

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3. Answer any five of the following-
- 3-a. Discuss the potential impact of AI and machine learning on web development. (CO1, K5) 6
- 3-b. Discuss the web testing? Explain the different types of web testing, including functional testing, usability testing, and performance testing. How do these tests help ensure the quality and reliability of a website? (CO1, K5) 6
- 3-c. Explain how JavaScript can be used to dynamically manipulate the DOM and handle events. (CO2, K5) 6
- 3-d. Compare and contrast XPath and XQuery in terms of their syntax, functionality, and use cases. (CO2, K5) 6
- 3-e. Describe the Bootstrap grid system and explain how it works to create responsive layouts. (CO3, K5) 6
- 3-f. Describe the different data types available in JavaScript with examples. Explain how JavaScript handles dynamic typing. (CO4, K5) 6
- 3-g. List and describe the different data types available in PHP. How does PHP handle type conversions? Illustrate with examples. (CO5, K5) 6

4. Answer any one of the following-

- 4-a. Describe essential internet services and tools such as email, FTP, VoIP, social networking, and cloud services. How has each of these services influenced communication and information sharing in the digital era? (CO1, K5) 10
- 4-b. Define protocols in the context of the web. Discuss the main protocols governing the web, including HTTP, HTTPS, FTP, and TCP/IP. Explain how these protocols facilitate data transfer and ensure secure communication. (CO1, K5) 10

5. Answer any one of the following-

- 5-a. Describe what frames are in HTML and how they were traditionally used for web layouts. Discuss why frames are less common today and the modern alternatives for layout design. (CO2, K5) 10
- 5-b. Explain XML namespaces, and why are they important? Explain how namespaces prevent element name conflicts in XML documents. (CO2, K5) 10

Answer any one of the following-

- 6-a. Explain the purpose of an external style sheet and how it is created. Discuss the advantages of using external style sheets over inline and internal styles in managing a website's design. (CO3, K5) 10
- 6-b. Explain the difference between ID and class selectors in CSS. How are these selectors used to style specific elements or groups of elements on a web page? Provide examples (CO3, K5) 10

Answer any one of the following-

- 7-a. Explain the differences between var, let, and const in JavaScript. Discuss their scope, hoisting behaviour, and best practices for using each. (CO4, K5) 10
- 7-b. What are template strings in JavaScript, and how do they improve string handling? Explain the syntax and provide examples, including the use of embedded expressions and multi-line strings. (CO4, K5) 10

Answer any one of the following-

- 8-a. Explain the control flow statements in PHP, including if, else, elseif, and switch. Discuss how they control the flow of a program and provide examples. (CO5, K5) 10
- 8-b. Implement and explain the procedure to renaming the file in the directory. (CO5, K5) 10