THE OPEN UNIVERSITY OF SRI LANKA

DEPARTMENT OF COMPUTER SCIENCE

B.Sc. DEGREE PROGRAMME 2024/2025

FINAL EXAMINATION CSU5302: WEB TECHNOLOGIES

DURATION: TWO HOURS ONLY (2 HOURS)

290

6th December 2024	Time: 2.00 p.m. to 4.00 p.m.

Answer **FOUR** Questions **ONLY**.

All questions carry equal marks.

Q1). In the banking sector, effective web design integrates security, usability, and accessibility to create a reliable, user-centred digital experience that aligns with the high expectations of modern customers.

    i. Identify and briefly explain two (2) advantages of implementing a client-server model for the IT system of a bank.

    ii. Identify four (4) specific drawbacks of implementing a client-server model.

    iii. Discuss the common web design aspects for the IT system of a bank.

    iv. Identify email protocols are suitable for banks' staff communication? Provide a brief description of each.

    v. Describe what Thick client, Thin Client and Rich Client are.

Q2). While most client-side scripting languages shape the layout of web pages, PHP is a server-side scripting language that serves as a powerful tool for building dynamic and interactive web content.

    i. List five (5) important factors to be considered on design of a website.

    ii. Identify and explain three methods for applying CSS to HTML documents in web design, highlighting the advantages of each approach.

    iii. Briefly explain five (5) purposes of CSS in web design and development.

    iv. Evaluate the strengths and limitations of using PHP for developing dynamic web applications and provide examples to support your evaluation.

    v. Identify two other types of loops in PHP, apart from the 'do while' loop, and compare their structures.

Q3). Although web hosting and Search Engines serve different purposes, they are interconnected.

    i. List the steps involved in hosting a web application.

    ii. Briefly explain what a shared server.

    iii. Briefly explain how Search Engines recommend/list the website when a person searches for an item.

    iv. Analyse five (5) effective methods for improving a website's ranking on Search Engines.

    v. Discuss five (5) key areas of future research in Search Engines and their potential impact.

Q4). XML is more powerful than HTML for data representation. By allowing users to define their own tags, XML enables the creation of a customized markup language tailored to specific problem sets.

    i.   Explain briefly how XML can be used to store and organize book inventory data, including an example of how the data might be structured using XML tags for attributes like book title, author, ISBN, price, and quantity.

    ii.   Define and briefly explain three advantages of using XML in web applications.

    iii.   Identify five (5) XML-based technologies widely used in internet.

    iv.   Briefly explain three (3) main advantages of using web services in application development.

    v.   Analyse the differences and similarities between WAMP server and XAMPP server.

Q5). Ensuring web security is an essential aspect of developing web applications.

    i.   Briefly define web security risk, highlighting its impact on both users and the organization.

    ii.   Identify and explain the key differences between known and unknown web security vulnerabilities in terms of detection methods and prevention strategies.

    iii.   Explain why it is crucial for web developers to continuously update their knowledge of web security, providing two key reasons.

    iv.   What are five common best practices that help developers create efficient, secure, and user-friendly web applications?

    v.   Briefly describe three (3) common best practices mentioned in the previous question.

Q6). Smartphones and other mobile devices now dominate internet usage, prompting continuous advancements in markup and scripting languages to enhance their capabilities.

    i.   Define three (3) key differences between desktop and mobile platforms.

    ii.   Identify and explain one design consideration and one development consideration that are important for creating mobile-compatible websites.

    iii.   Is it possible to browse a website designed for desktop computers on a smartphone or other mobile device? Provide two (2) reasons to justify your answer.

    iv.   Explain the significance of HTML5 in enhancing the mobile user experience by providing two (2) features.

    v.   Briefly describe three (3) important ways CSS contributes to mobile web design and development, improving the user experience on mobile devices.