



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

DEPARTMENT OF INFORMATION SYSTEMS

UNIVERSITY EXAMINATION FOR THE DEGREE BACHELOR OF SCIENCE IN

BUSINESS INFORMATION SYSTEMS

YEAR THREE: SEMESTER ONE

4TH YEAR 1ST SEMESTER 2024-2025 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: ITB 2403

COURSE TITLE: Web Application Development

DATE:9/1/25

EXAM SESSION:14-16.00 HRS

TIME:2 HRS

VENUE:LAB 15

INSTRUCTIONS

- 1. Answer Question 1 (Compulsory) and ANY other TWO questions**
- 2. Candidates are advised not to write on the question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

QUESTION TWO (30 MARKS)

- b) Describe the **Client-Server Model** and how it is implemented in a web application. Provide an example of a web application that uses this model. (10 Marks)
- c) Explain the difference between **Static** and **Dynamic** web pages. Give an example of when you would use each type. (4 Marks)
- d) Describe the following HTML elements and their purposes: (1 Mark each)
- i. <header>
 - ii. <footer>
 - iii. <article>
 - iv. <aside>
 - v. <section>
 - vi. <main>
- e) Write an HTML form that allows users to register for an event. Include fields for **First Name**, **Last Name**, **Email Address**, and **Password**. (6 Marks)
- f) What are **Web Standards**, and why are they important in web development? (4 Marks)

QUESTION TWO (20 MARKS)

- a) Discuss the **Document Object Model (DOM)** and explain how JavaScript can dynamically interact with the DOM to manipulate web pages. (6 Marks)
- b) Define **JavaScript Events** and give three examples of commonly used events. Write a code snippet to demonstrate how to use the `onclick` event to display an alert message when clicking a button. (6 Marks)
- c) Explain the role of **CSS** in web development and describe the difference between **inline**, **internal**, and **external** CSS styles. (8 Marks)

QUESTION THREE (20 MARKS)

- a) What is **PHP**, and how does it differ from client-side scripting languages like JavaScript? (5 Marks)
- b) Write a simple PHP script that takes a user's name and email address from a form, processes it, and displays a welcome message with the user's name on the webpage. (7 Marks)
- c) Explain **Cookies** and **Sessions** in PHP. How do they differ, and when would you use each one? (8 Marks)

QUESTION FOUR (20 MARKS)

a) Describe the concept of **Responsive Web Design** and explain why it is crucial for modern web applications. (4 Marks)

b) What are **media queries** in CSS? Write a CSS media query example that changes the background color of a webpage to light blue when the viewport width is 600px or smaller.

(6 Marks)

c) Develop a simple HTML and CSS code that creates a navigation bar with links to **Home**, **About**, **Services**, and **Contact**. Make sure the navigation bar has a background color and each link changes color when hovered over. (10 Marks)

QUESTION FIVE (20 MARKS)

a) Explain the difference between **GET** and **POST** methods in HTML forms. Provide an example of when each should be used. (5 Marks)

b) Write a brief explanation of **AJAX** and discuss how it can be used to enhance the functionality of a web application. (5 Marks)

c) Create a simple HTML form that allows users to input a username and then uses JavaScript and AJAX to send a request to a PHP file on the server to check if the username is already taken. Assume the PHP file returns a message indicating if the username is available or not. Provide both the HTML/JavaScript and PHP code. (10 Marks)

QUESTION SIX (20 MARKS)

a) What is **Web Hosting**, and what factors should be considered when choosing a hosting provider for a web application? (5 Marks)

b) Explain the terms **FTP** and **SFTP**. How do these protocols differ, and what are their roles in web development? (5 Marks)

c) Discuss **three common security threats** to web applications and explain strategies that can be implemented to mitigate each threat. (10 Marks)