



## TECHNICAL UNIVERSITY OF MOMBASA

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INSTITUTE OF COMPUTING AND INFORMATICS  
DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY  
**UNIVERSITY EXAMINATION FOR:**  
BSIT, BTIT, BMCS Y3S1  
CSE 4302: ADVANCED WEB APPLICATION DEVELOPMENT  
END OF SEMESTER EXAMINATION 2  
**SERIES: NOV-DEC 2024**  
**TIME:2HOURS**

### Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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### QUESTION ONE [30 Marks]

- Explain why it is important to hash passwords in a user management system. [3 Marks]
- Explain how the concept of encapsulation can improve the security of a PHP application. [3 Marks]
- Explain the primary functions of CRUD operations in a database context [5 Marks]
- Write a PHP script that uses a `for` loop to print all the values of an array. [4 Marks].
- Describe** how Laravel's MVC (Model-View-Controller) architecture facilitate the separation of concerns in a web application. [5 Marks]
- Explain using code how you can use a `foreach` loop to iterate through an associative array and print both the keys and values. [5 Marks].
- Evaluate the advantages of using Laravel's Blade templating engine over plain PHP in views [5 marks].

### QUESTION 2[20 Marks]

- Explain how the request-response cycle works in web applications. Why is HTTP considered stateless? [6 Marks]
- You are tasked with building a web application that requires user authentication. Outline ANY FOUR security measures you implement to secure the application. [8 Marks]
- Create a PHP class for a `Car` and instantiate two objects of that class. [8 Marks]

### QUESTION 3[20 Marks]

- a. Design a secure login system for a web application. Outline the components involved and the steps taken to protect against common security vulnerabilities such as SQL injection, cross-site scripting (XSS), and cross-site request forgery (CSRF). [10 Marks]
- b. Evaluate the effectiveness of implementing web services in modern software development compared to traditional monolithic architectures. [10 Marks].

### QUESTION 4[20 Marks]

- a. Outline any **THREE** key features of PHP as a server-side scripting language. [6 Marks]
- b. Compare and contrast client-side and server-side scripting in terms of functionality and appropriateness [6 Marks]
- c. Design a simple database schema for a blog application that includes users, posts, and comments, and explain your design choices. [8 Marks].

### QUESTION 5[20 Marks]

- a. Identify any **FIVE** key components of the Laravel PHP Framework. [5 Marks]
- b. Compare the effectiveness of client-side validation to server-side validation in PHP applications. [5 Marks]
- c. Explain the importance of error handling in CRUD operations and its impact on application performance and security. [5 Marks]
- d. Evaluate the impact of using prepared statements in PHP when working with databases [5 Marks]