



UNIVERSITY EXAMINATIONS

FIRST SEMESTER 2025/2026 ACADEMIC YEAR

**SECOND YEAR EXAMINATION FOR THE DEGREES OF
BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND
BACHELOR OF SCIENCE IN INFORMATION
COMMUNICATION AND TECHNOLOGY**

**COMP 214: APPLICATION PROGRAMMING FOR THE
INTERNET**

STREAM: R

TIME: 2 HRS

DAY: TUESDAY [8.30 – 10.30 A.M]

DATE: 03/02/2026

THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

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INSTRUCTIONS: `

Section **A** is compulsory and has **30 marks**.

Attempt any **TWO** questions from Section **B**. Each question has **20 marks**.

Section A – 30 marks (Answer all questions)**QUESTION ONE (30 MARKS)**

- a) Contrast **Native Apps**, **Cross-Platform Apps**, and **Progressive Web Apps (PWAs)** based on the platform(s) they are built for, and state one key advantage and one disadvantage for each development approach. **(6 Marks)**
- b) Outline four key stages in the development of internet-based applications and briefly explaining the objective of each stage. **(4 Marks)**
- c) Discuss four features that makes PHP remain in use despite several other programming languages in existence **(4 Marks)**
- d) Write a simple PHP code to connect to the database using PHP **(4 Marks)**
- e) State two comments in PHP language **(2 Marks)**
- f) Giving examples, differentiate between while and do while loop **(6 Marks)**
- g) Outline the steps required to create and use a route, controller, and view in Laravel to display a list of items stored in a database. **(4 Marks)**

SECTION B – 40 MARKS (ANSWER ANY TWO QUESTION)**QUESTION TWO (20 MARKS)**

- a) write a PHP program to calculate electricity bill using if-else conditions. **(7 Marks)**

Conditions:

For first 50 units – Ksh. 3.50/unit

For next 100 units – Ksh. 4.00/unit

For next 100 units – Ksh. 5.20/unit

For units above 250 – Ksh. 6.50/unit

- b) Describe the difference between GET and POST methods in form submission. **(4 Marks)**
- c) PHP scripting language is an object oriented language that supports array object. State the three ways to construct array giving an example of each **(5 Marks)**
- d) Discuss two data types provided by PHP **(4 Marks)**

QUESTION THREE (20 MARKS)

- a) Giving examples in each case, discuss the **3** ways in which arrays can be defined in PHP (4 Marks)
- b) Write a PHP code to display all odd numbers from 1 to 10 (3 Marks)
- c) What is a variable in PHP? Name two rules of declaring a variable in PHP (3 Marks)
- d) Web designer require to be conversant with control structures in PHP. Differentiate between do while and while loop with an example (5 Marks)
- e) Write a PHP program to reverse the string (5 Marks)

Condition:

- Use any string related built-in Function.
- Use only one variable.

QUESTION FOUR (20 MARKS)

- a) What is Laravel? Describe the MVC architecture it uses and explain its advantages in web development. (5 Marks)
- b) Explain what a route is in Laravel and give an example of a simple GET route (5 Marks)
- c) From the MySQL database table called **student**. Write a PHP code to fetch the records from the database and display it into HTML page (5 Marks)

RegNo	First_Name	Last_name	Course	Gender
Cit/1290	Mercy	Kimathi	IT	Female
Cit/677	Haron	James	Comp	Male
CIT/880	Hillary	Kip	Comp	Male
CIT/97656	Stephen	Mutinda	IT	Male

- d) Write a program in PHP to remove specific element by value from an array using PHP program. (5 Marks)

Instructions:

- Take an array with list of month names.
- Take a variable with the name of value to be deleted.
- You can use PHP array functions or foreach loop.

QUESTION FIVE (20 MARKS)

- a) After creating a web page, explain how one can use web browser to display the contents
(4 Marks)
- b) Explain the importance of **Security** and **Scalability** as best practices when building a successful internet application
(4 Marks)
- c) Differentiate between require and include functions as used in PHP
(3 Marks)
- d) Write a PHP program to check if a person is eligible to vote or not.
(4 Marks)

Condition

- Minimum age required for vote is 18.
 - Use PHP Functions.
 - Use Decision Making Statements.
- e) Write a PHP function to check if a submitted email is valid.
(5 Marks)