



UNIVERSITY EXAMINATIONS

FIRST SEMESTER 2025/2026 ACADEMIC YEAR

**FOURTH YEAR EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN COMPUTER SCIENCE**

COMP 419: USER INTERFACE DESIGN

STREAM: R

TIME: 2 HRS

DAY: THURSDAY [11.30 – 13.30 P.M]

DATE: 05/02/2026

THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

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INSTRUCTIONS: Answer Question **ONE** and **ANY** other **TWO** Questions in Section **B**

SECTION A

QUESTION ONE [30 Marks]

- (a) Explain the following concepts in user interface design:
 - i) Usability (2 Marks)
 - ii) Affordance (2 Marks)
 - iii) Heuristic evaluation (2 Marks)
- (b) Explain **TWO** reasons why prototyping is essential in the user interface design process (2 Marks)
- (c) Differentiate between consistency and feedback as applied in interface design, providing one example for each (4 Marks)
- (d) State and Explain **FOUR** common usability goals that guide the evaluation of user interfaces (4 Marks)
- (e) Describe how cognitive load affects user performance and how designers can minimize it in digital interfaces (3 Marks)
- (f) List and explain **THREE** benefits of implementing accessibility standards such as WCAG in UI design (3 Marks)
- (g) What is interaction design, and how does it relate to user experience design? (2 Marks)
- (h) Identify **TWO** factors to consider when designing interfaces for mobile devices (2 Marks)
- (i) Explain **TWO** ways in which cultural differences may influence interface design decisions (2 Marks)
- (j) Describe **TWO** methods used to collect user feedback during interface evaluation (2 Marks)

SECTION B

QUESTION TWO [20 MARKS]

- (a) Discuss **FIVE** characteristics of an effective user interface (5 Marks)
- (b) You have been tasked to design a mobile application for booking university hostels
 - i) Describe the process you would follow to conduct user research before designing the interface (5 Marks)
 - ii) Identify and explain **THREE** key visual design elements that would enhance usability in your app (6 Marks)
 - iii) Explain how usability testing results would be used to refine your design (4 Marks)

QUESTION THREE [20 MARKS]

- (a) Explain the difference between formative and summative usability testing, giving **ONE** example of each (4 Marks)
- (b) A company developing an e-learning platform wants to ensure user engagement and accessibility
- i) Discuss how you would apply color theory and typography principles to enhance learning effectiveness (6 Marks)
 - ii) Identify and describe **THREE** interaction patterns that could support easy navigation and content discovery (6 Marks)
 - iii) Explain how feedback mechanisms can improve the user experience on the platform (4 Marks)

QUESTION FOUR [20 MARKS]

- (a) Define and discuss the concept of information architecture in interface design (4 Marks)
- (b) Laikipia University has contracted you to redesign the digital library interface for ease of use by first-year students
- i) Outline **THREE** layout principles you would apply to improve readability and navigation (6 Marks)
 - ii) Sketch and label a low-fidelity wireframe showing the main sections of your interface (8 Marks)
 - iii) Explain **TWO** advantages of using personas in this redesign process (2 Marks)

QUESTION FIVE [20 MARKS]

You are part of a design team creating an interface for a self-service agricultural information kiosk for farmers with limited digital literacy

- (i) Outline the steps of the user-centered design process you would follow (6 Marks)
- (ii) Explain **TWO** methods you would use to gather user requirements in this context (4 Marks)
- (iii) Identify and explain **THREE** design principles that would enhance usability for low-literacy users (6 Marks)
- (iv) Discuss **TWO** accessibility features that should be included to accommodate users with visual or hearing impairments (4 Marks)