

UNIVERSITY EXAMINATIONS

1ST SEMESTER 2022/2023 ACADEMIC YEAR

**SECOND YEAR EXAMINATION FOR THE DEGREE
BACHELOR OF SCIENCE (COMPUTER SCIENCE)**

COMP 215: SYSTEM ANALYSIS AND DESIGN

STREAM: R

TIME: 2 HRS

DAY: FRIDAY [2.30PM – 4.30PM] DATE: 09/12/2022

THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

INSTRUCTIONS:**Answer question one and any other two****Use illustrations where necessary****QUESTION ONE (30 MARKS)**

- (a) State TWO reasons why a system analyst uses open-ended questions (2 marks)
- (b) Differentiate between
 - (i) Open and closed system (2 marks)
 - (ii) Physical and abstract? (2 marks)
- (c) Outline TWO benefits of a feasibility study? (2 marks)
- (d) At which phase of SDCL life cycle is the cost of error correction the least and why is this so? (2 marks)
- (e) Laikipia university has asked your company to develop a Library Management System. You are the lead system analyst in the project. State any THREE roles you will play in the project. (3 marks)
- (f) Outline THREE scenarios where a questionnaire would be more suited as a data collection tool as opposed to interviews. (3 marks)
- (g) Explain what is Integration Testing (2 marks)
- (h) Suppose a software project you are to undertake has a total investment of KSH 50,000 and benefits are worth KSH 80,000. What is its Net Present value? (3 marks)
- (i) What is the 'scope' of a project and why is it important? (2 marks)
- (j) As part of a team that is involved in the design and development of a software, why would you propose/prefer an external independent team to do the software tests? (2 marks)
- (k) What is API (Application Programming Interface)? (2 marks)
- (l) State three advantages of designing tests early in the SDLC? (3 marks)



QUESTION TWO [20 MARKS]

- (a) A hospital intends to procure a hospital management system. Give two examples of what may be evaluated in each of the feasibility studies bellow for the hospital management system.
- (i) Economic Feasibility. (2 marks)
 - (ii) Legal Feasibility. (2 marks)
 - (iii) Operational Feasibility. (2 marks)
- (b) You are the lead project supervisor of a project where Ksh 30,000 has been invested and has 15% interest rate. Using Present value analysis, calculate the project's value in each of the next FIVE years (10 marks)
- (c) State the FOUR elements of data-flow diagrams and show their symbol notations. (4 marks)

QUESTION THREE [20 MARKS]

- (a) A maker of digital cameras company wants to update its accounting functions. You as a system analyst have to interview Mr. Kevin, the chief accountant.
- (i) State which structure you will choose for this interview. Why? (3 marks)
 - (ii) Mr. Kevin has four subordinates who also use the system. Would you interview them also? Why or why not? (3 marks)
 - (iii) Write three open-ended questions that you will email to Mr. Kevin prior to your interview. (3 marks)
- (b) Describe the THREE types of defects that can be identified during testing. Give an example in each. (6 marks)
- (c) Using a diagram, explain the spiral model. (5 marks)

QUESTION FOUR [20 MARKS]

- (a) Laikipia University is undertaking a project to digitize its sports department by having a system that will be able to keep records of the performance of all the school sports teams and internal competitions. Outline the main stages of the SDLC and state any TWO activities to be performed in each of the stages of this project. (10 marks)



- (b) Outline THREE advantages and THREE disadvantages of the waterfall model
(6 marks)
- (c) Outline FOUR reasons why having efficient communication throughout the entire SDLC is critical?
(4 marks)

QUESTION FIVE [20 MARKS]

- (a) Draw a DFD for a student exam card issuance process in a university
(4 marks)
- (b) State any THREE differences between verification and validation in software testing
(6 marks)
- (c) Draw a use case diagram for a hotel management system. The diagram should contain at least three actors
(10 marks)

