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**KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**UNIVERSITY EXAMINATION, 2023/2024 ACADEMIC YEAR**  
**FIRST YEAR, SECOND SEMESTER EXAMINATION**  
**FOR THE DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY**  
**DIT 1005 – SYSTEM ANALYSIS AND DESIGN**

Date: 13<sup>TH</sup> December 2023  
Time: 11:30AM – 1:30PM

**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

- a) The Huduma Number system was intended to provide a unique identification number for Kenyan citizens. It faced significant challenges during its implementation.
- i) Using 4 relevant examples explain the factors and issues that led to the failure of the Huduma Number system in Kenya. (4 Marks)
  - ii) Identify 4 key stakeholders that contributed to the system's failure. (4 Marks)
  - iii) Using 2 examples, provide recommendations on how similar projects could be more successfully executed in the future. (4 Marks)
- b) Explain the role of a system analyst in the systems development process. (3 Marks)
- c) Discuss the importance of effective communication skills for a system analyst. (3 Marks)
- d) Compare and contrast Data Flow Diagrams (DFD), Entity-Relationship Diagrams (ERD), and Use Case Diagrams as tools for modeling business processes. (4 Marks)
- e) What are the key steps in requirements gathering and analysis? (4 Marks)
- f) Describe the techniques used for stakeholder identification and analysis. (4 Marks)

**QUESTION TWO (20 MARKS)**

- a) Using a well labelled diagram, describe the key stages of the Systems Development Life Cycle (SDLC). (4 Marks)
- i) Explain the purpose of each stage and its significance in system development. (4 Marks)
- b) A retail chain is redesigning its inventory management system. Create a Use Case Diagram to represent the interactions between users and the system. (4 Marks)
- c) An online streaming service is planning to improve its user interface to enhance the viewing experience. Describe the principles of user interface design and discuss how they can be applied to this project (4 Marks)
- i) Using Two examples, discuss the considerations of hardware and software architecture in the example above. (4 Marks)

**QUESTION THREE (20 MARKS)**

- a) A city government is planning to implement a smart traffic management system.
- i) Describe the process of stakeholder identification and analysis in this context. (4 Marks)
  - ii) Discuss how interviews, surveys, and questionnaires can be used to gather requirements from various stakeholders. (4 Marks)
- b) A university is developing a student information system.
- i) Explain the importance of a well-structured database design in managing student records. (4 Marks)
  - ii) Discuss how normalization and data integrity should be implemented in the database. (4 Marks)
- c) A manufacturing company is introducing a new Enterprise Resource Planning (ERP) system.

- i) Discuss the tools and environments needed for system implementation and the role of programming and coding in configuring the ERP system. (4 Marks)

**QUESTION FOUR (20 MARKS)**

- a) A financial institution is transitioning to a new online banking platform.
- i) Describe the role of change management in ensuring a smooth transition. (4 Marks)
- ii) Using 2 relevant examples, discuss how employees' resistance to change can be addressed. (4 Marks)
- b) A major bank relies on its Transaction Processing System (TPS) to handle millions of daily financial transactions.
- i) Explain how the TPS supports the bank's daily operations. (4 Marks)
- ii) Analyze the advantages of TPS in terms of efficiency and data accuracy. (4 Marks)
- iii) Discuss any Two potential disadvantages or challenges the bank might face. (4 Marks)

**QUESTION FIVE (20 MARKS)**

- a) A software development company has been contracted to build a new e-commerce platform for a retail chain.
- i) Discuss the choice of system methodology for the project and explain the reasons for this choice. Using 2 examples, discuss advantages of the selected methodology (4 Marks)
- ii) Discuss 4 disadvantages of the selected methodology chosen. (4 Marks)
- b) A law firm has recently adopted an Office Automation System to streamline administrative tasks, document management, and communication.
- i) Describe how this system is used in the law firm to improve office efficiency. (4 Marks)
- ii) Discuss Two advantages of office automation in the legal industry (4 Marks)
- iii) Using 2 relevant examples, discuss any potential disadvantages or concerns related to data security and privacy in relation to the system. (4 Marks)