KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS, 2024/2025 ACADEMIC YEAR
SECOND YEAR, FIRST SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE (MATHEMATICS)

KCS 2205: SYSTEMS ANALYSIS AND DESIGN

DATE: 5ᵀᴴ DECEMBER 2024
TIME: 2:30PM-4:30PM

INSTRUCTIONS TO CANDIDATES
ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE: COMPULSORY (30 MARKS)

AlphaTech is a technology company that specializes in developing customized software solutions for various industries. As part of its latest project, AlphaTech is tasked with developing a comprehensive inventory management system for a mid-sized retail client. The project aims to enhance the client's operational efficiency, streamline inventory tracking, and improve reporting capabilities.The development team, consisting of system analysts, developers, a system administrator, and a system designer, is currently in the system investigation phase. The team is focused on gathering detailed requirements and understanding the client's existing inventory processes to design an effective solution.

a) Based on the case study above, describe the key elements that a system analyst must capture and document during a system investigation and survey.   **(4 Marks)**

b) Based on the case study above, differentiate between functional system requirements and non-functional system requirements, providing examples for each category.   **(6 Marks)**

c) Explain three common methods of system investigation used for data collection in system development based on the case study above.   **(6 Marks)**

d) Discuss the roles and responsibilities of the following project team members in the context of AlphaTech's system development project.   **(6 Marks)**

i) System Administrator

ii) System Designer

 (e) Outline the various activities that a system developer must engage in during the system development life cycle (SDLC).   **(4 Marks)**

(f) Discuss two roles of a system analyst in the system development life cycle **(4 Marks)**

QUESTION TWO: (20 MARKS)

a) Discuss the factors that should be considered when designing an effective questionnaire for system planning and requirements gathering. **(5 Marks)**

b) Explain four benefits of using a prototyping methodology for system development, including its impact on user involvement and feedback. **(5 Marks)**

c) Elaborate on the importance of conducting a feasibility study in system development, detailing its key components and how they influence project success. **(10 Marks)**

QUESTION THREE: (20 MARKS)

a) Discuss the importance of user requirements and how they influence system functionality.

(5 Marks)

b) Explain technology constraints and their impact on design decisions. **(5 Marks)**

c) Describe the significance of integration needs with existing systems or platforms. **(5 Marks)**

d) Assess how regulatory and compliance considerations may affect system design. **(5 Marks)**

QUESTION FOUR: (20 MARKS)

a) Explore the objectives of system documentation throughout the planning and development process, emphasizing its significance for stakeholders and future maintenance. **(5 Marks)**

b) Identify and describe five types of feasibility studies that a system developer should conduct prior to the implementation of a new system. **(5 Marks)**

c) Explain how technical feasibility assesses the technology requirements and whether the organization has the necessary infrastructure. **(5 Marks)**

d) Describe the evaluation of the cost-effectiveness of the proposed system, including cost-benefit analysis. **(5 Marks)**

QUESTION FIVE: (20 MARKS)

a) Differentiate between Management Information Systems (MIS) and Decision Support Systems (DSS), highlighting four key differences in their purposes and functionalities. **(4 Marks)**

b) Describe the four main types of system maintenance, focusing on their objectives and how they contribute to the longevity of a system. **(8 Marks)**

c) Discuss four system implementation methods that can be employed during the implementation phase, including their advantages and disadvantages. **(8 Marks)**