MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2023/2024 ACADEMIC YEAR

SECOND YEAR **FIRST** SEMESTER EXAMINATION FOR BBIT, BIT, BSE, BCS, BMCS, BDIT, BED (SCIENCE)

SIT 201-SYSTEM ANALYSIS AND DESIGN

DURATION: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer question one and any other two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: 30 MARKS (Answer all questions in this section)

QUESTION ONE (30 MARKS)

a. Distinguish between the following: (6 marks)
    i.   Open and closed system
    ii. Decision trees and decision tables
b. Explain 3 advantages and 3 pitfalls of observing workers to determine systems requirement.
                                                                        (6 marks)
c. What is the difference between a system analyst and a system designer? Identify four challenges a system analyst is likely to encounter in his or her work.   (6 marks)
d. Briefly describe three types of report generated by management information systems.
                                                                        (6 marks)
e. Michelle works as an analyst in a small software development firm in Kenya. The firm develops software that manages university admissions process. Michele wants to quickly develop a user interface to demonstrate to a potential client how the final system will appear and function
    i.   Discuss the most appropriate methodology for this kind of development. (2 marks)
    ii. Outline four principles that can guide Michelle while designing the user interface.
                                                                        (4 marks)

SECTION B: 40 MARKS (Answer any two questions in this section)

QUESTION TWO (20 MARKS)

a. However well users are satisfied or efficient the processing is, a system cannot be considered adequate unless it is documented to a very high standard. Briefly describe three reasons why much emphasis is placed on high quality documentation.   (6 marks)
b. A customer places an order. The order food process receives the order, forwards it to the kitchen, store in the order data store and store the updated inventory details in the inventory data store. The process also delivers a bill to the customer. Manager can receive reports through the generate report process which takes inventory details and orders as input from the inventory and order data store respectively. Model the entries and processes for the above system and represent that in a data flow diagram.   (8 marks)
c. The introduction of the computer based information system can create fear and reluctance on the part of the users. Outline six reasons for such user's resistance. For each reason provide an explanation on how to overcome each.   (6 marks)

QUESTION THREE (20 MARKS)

a. Assuming you are a senior system analyst working in an IT department of a large organisation that currently uses the traditional SDLC as the standard for developing new systems. You have been asked by your manager to examine a number of structured systems methodologies with a view of recommending the most appropriate one to be adopted by the company

    i.   Elucidate four features of the structured approach to systems analysis and design.

        (8marks)

    ii.   Briefly describe the main stages in the traditional systems development lifecycle (SDLC) stating the main deliverables/products of each stage.   (8 marks)

b. Explain the advantages of walkthroughs in systems developments.   (4 marks)

QUESTION FOUR (20 MARKS)

a. Whenever a new patient is seen for the first time they complete a patient information form that ask their name, address, phone number and insurance carries all which are stored in the patient information file. Patient can be signed up to be seen by the doctor. Each time a patient visits the doctor, an insurance claim is sent to the carriers for payment. The claim must contain information about the visit, such as the date, purpose and cost. It would be possible for a patient to submit two claims on the same day. Draw an Entry Relationship Diagram (ERD) for this case showing: entities, attributes, relationship, cardinalities and identifiers (primary and foreign key). You must state all assumption you make in creating the ERD and you need to provide a narrative in plain language describing what your ERD says. (10 marks)

b. Mercy graduated from a local university in 2022 with a degree in Business Information Technology (BBIT) but with minimum experience in IT implementation. Her parents have been running a video library in Kitale town and two others in Eldoret. The libraries rent and sell audio CDS, video CDS, DVDS audio tapes and video tapes as well as story books. Mercy would like to automate the manual libraries and intends for the project to take not more than three months. Analyse any three possible changes –over techniques Mercy could use to implement the systems at the three sites and select one you consider most appropriate for this project and justify your choice.   (10 marks)