



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2018/2019

### FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DIPLOMA IN INFORMATION TECHNOLOGY

#### CIT 2152: SYSTEM ANALYSIS AND DESIGN

DATE: AUGUST 2019

TIME: 1½ HOURS

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INSTRUCTIONS: Answer question *one* and any other *two* questions

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#### QUESTION ONE (30 MARKS)

- a) Differentiate between the following
  - i. Physical DFD and logical DFD (2 marks)
  - ii. System analysis and system design (2 marks)
- b) Highlight and describe three roles of system analyst in system development (6 marks)
- c) Describe two different methods of system changeover (4 marks)
- d) Describe two constraints that may arise in the course of developing a system (2 marks)
- e) State and explain two type of maintenance (4 marks)
- f) Describe two fact finding techniques (4 marks)
- g) Describe three objectives of carrying out a preliminary study during system development (6 marks)

## **QUESTION TWO (20 MARKS)**

- a) Discuss two principles of good user interface design (4 marks)
- b) System analysis involves gathering data on existing system, analyzing the facts to identify the problems, their causes and effects and the opportunities available for improvement. Explain four issues a system analyst must determine during the analysis (8 marks)
- c) Design a flowchart based on the following scenario. The program prompts the user to enter his/her name and age and determine whether the user is an adult or not. If he/she is below 21 years old, the user would be a teenager else he/she would be an adult. The user would be prompted after each person, if he/she wishes to enter any more name, the program continues to run until the user enters "NO or "N" (8 marks)

## **QUESTION THREE (20 MARKS)**

- a) After feasibility study is carried out, the next step is to write a feasibility study report. One of the content of feasibility report is recommendation. Explain three distinct types of recommendations that can be made (6 marks)
- b) The implementation phase of the SDLC is where the information system is actually constructed. Explain the main activities carried out during the system implementation phase of the SDLC (6 marks)
- c) Kanini Haraka Wholesalers Ltd provides a variety of goods to customers in Meru. The wholesale business is owned and managed by Mr. Haraka purchases goods on credit from his well-established suppliers. He has a large box-file containing supplier details and another equally large one containing commodity details. The commodity file also indicates the levels of inventory held in the store. When a customer makes his order, the sales office accesses the commodity file to check if there is sufficient stock of the require items. If there is sufficient stock, then the sales office prepares a delivery not which forwarded to the accounts office where an invoice is prepared. The invoice and the delivery not accompany the goods from the store to the customer who prepares a payment cheque for Kanini Haraka Wholesalers ltd  
A copy of the delivery not is filed in the commodity file which now shows that the stock has reduced by the amount delivered to the customer order. Sometimes the stock of the required item is not sufficient to service the customer order. In this case the

supplier's file is accessed to select the supplier that Kanini Haraka Wholesaler Ltd will order from. The sales office then produces purchase orders and dispatches them to the selected supplier. The supplier prepares his own invoice and delivery note which accompany the ordered goods to the stores of Kanini Haraka Wholesalers Ltd. once received the invoice forwarded to the accounts office for payment to the supplier. The delivery not is used to update the commodity as well as the supplier details files

- i. Draw a Data Flow diagram (DFD) to show the data flow, processing, inputs, outputs, sources and destinations at Kanini Haraka Wholesalers Ltd

(8 marks)

#### **QUESTION FOUR (20 MARKS)**

- a) Describe two components of a data flow diagram (4 marks)
- b) Explain three steps that would be used in developing a prototype (6 marks)
- c) Explain the importance of staff training during implementation process (4 marks)
- d) Explain three reasons why tools such as data flow diagrams (DFD), entity relationship diagrams (ERD) and flowcharts are particular suited for documenting design options of an information system compared to narrative texts'? (6 marks)

#### **QUESTION FIVE (20 MARKS)**

- a) Explain five components of an E-R diagram (5 marks)
- b) During development of Meru University Library System, there were many rules documented, that is a procedure for becoming a member of library, rule for issuing books etc. The membership rule stated  
"Anyone whose age is 18 or more than that can become a member of library. There are two types of memberships depending upon the duration of membership. First is for 6 months and other is for 1 year 6 months membership fee is ksh 1000 and 1 year membership fee is Ksh 1500".
  - i. Draw a decision tree for the membership rule (8 marks)
  - ii. Draw a decision table for the membership rule (7 marks)