MACHAKOS UNIVERSITY

University Examinations for 2022/2023

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

SIT 366: SYSTEM DEVELOPMENT

DATE: **TIME:**

INSTRUCTIONS

This paper consists of FIVE questions
*Answer **question one** and other **two questions** in this paper*

QUESTION ONE (COMPULSORY) (30 MARKS)

a) Explain the importance of studying System Development as a unit. (3 marks)

b) Outline **FOUR** characteristics of good system. (4 marks)

c) (i) Briefly explain **THREE** tasks that are performed during the system development Process. (6 marks)

(ii) Outline **FOUR** skills that a systems analyst must possess. (4 marks)

e) With the use of an appropriate diagram, describe the three levels of management found in a typical organization, highlighting the type of information system used at each level. (9 marks)

f) Discuss any **FOUR** data collection tools. (4 marks)

QUESTION TWO (20 MARKS)

(a) Define the following terms used in system development:

(i) Block chain

(ii) Cloud-native

(iii) Application Programming Interface (API) (3 marks)

(b) (i) Software development is said to be pervasive. Explain the meaning of this statement. (3 marks)

(ii) Describe any FOUR steps used in system development. (8 marks)

(iii) Discuss the THREE variations of the linear sequential method of software development. (6 marks)

QUESTION THREE (20 MARKS)

(a) Define the terms Open Source Software Development. (2 marks)

(b) Explain FOUR differences between Open Source versus Closed Source software development methods. (8 marks)

(c) With the use of appropriate diagrams where necessary, describe the following system development methods:
   (i) Agile
   (ii) eXtreme Programming (XP)

(10 marks)

QUESTION FOUR (20 MARKS)

You have been appointed by a small retail company called 'E solutions' to project manage their move into as new warehouse to enable the launch of their E-commerce department. This will involve the design, supply, and installation of a telecommunications system, fixture and fittings, data capture points, an integrated suite of hardware and software. The network server and PCs should operate a warehouse software system, an online retail shop, an order tracking and processing system, and a secure payment system that will link to the current accounting system.

(a) Using the waterfall model as a reference model, explain what specific activities in relation to this case study, will each of the stages of the model entail. (10 marks)

(b) Discuss **FIVE** types of feasibility studies you will carry out, to ensure that this system is analyzed, designed and implemented in an effective manner. (10 marks)

QUESTION FIVE (20 MARKS)

(a) Explain what you understand by a system model. (2 marks)

(b) Discuss the following system development models, providing suitable application areas for each:
   (i) Rapid Application Development (RAD)
   (ii) Rational Unified Process (RUP)

(6 marks)

(c) (i) Using suitable notations provide the meaning of any three symbols used in DFDs. (3 marks)

   (ii) Draw a suitable DFD to depict the following case scenario:
   When an invoice is received from a supplier, it is checked against a file of authorized purchases. If the invoice does not match an authorized purchase, then a querying letter is prepared and returned back with the invoice to the supplier. If the invoice reconciles, a payment authorization is made out. A cheque is then prepared and sent to the supplier, and the invoice and the authorization are filed. (5 marks)

   (iii) Explain the significance of leveling as used in DFDs and highlight TWO processes from the above diagram that can further be leveled. (4 marks)