



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 a 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)