# MACHAKOS UNIVERSITY

**University Examinations for 2021/2022**

**SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY**

**FIRST YEAR SPECIAL / SUPPLEMENTARY EXAMINATIONS FOR**

**BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)**

**SIT160 INFORMATION SYSTEMS**

**DATE: 30/8/2022** **TIME: 2.00-4.00 PM**

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**INSTRUCTIONS:**

*This paper consists of five questions*
*Answer question 1 and two other questions in this paper*

**QUESTION ONE (30 MARKS)**

a) Describe three components of information systems. (6 marks)

b) A student created an information system for use in a retail shop. Explain **two** characteristics of the information likely to be generated by this system. (4 marks)

c) With the aid of a diagram explain the conversion of data into informatiom. (4 marks)

d) The following are types of information systems used in an organization.

i. Transaction Processing

ii. Management Information

iii. Decision Support

e) Using a diagram, outline the level of management in which each type is used. (3 marks)

f) Describe **three** components of an expert system. (6 marks)

g) The following are transactions carried out using an information system.

Booking of bus ticket

Processing staff salaries

Withdraw from e-wallet

For each of the transactions, state the most appropriate processing mode. (3 marks)

h) A student has been contracted to develop an information system. Explain two types of requirements he needs to collect. (4 marks)

**QUESTION TWO (20 MARKS)**

a) Define the term concurrecy as used in data processing. (2 marks)

b) Describe three methods of data processing. (6 marks)

c) A student would like to process data collected about customer satisfaction with a certain product. Explain **three** activities the student need to carry out before data input. (6 marks)

d) With the aid of a diagram explain the waterfall system development methodology. (6 marks)

**QUESTION THREE (20 MARKS)**

a) List six equipment used in office automation systems. (3 marks)

b) Distinguish between testing and debugging as used in the system development. (4 marks)

c) A student would like to collect requirements for a system he is developing. Explain two methods he could use for this activity. (4 marks)

d) Discuss **three** methods used to determine the cost of a software project. (9 marks)

**QUESTION FOUR (20 MARKS)**

a) Outline **two** methods used to recover data in an information system. (2 marks)

b) Jacob, engages in online purchase of computer accessories.

i. Outline three benefits of this form of purchase. (3 marks)

ii. State four cyber crimes he is exposed to. (2 marks)

c) A system analyst would like to test an information system he has developed. Explain three methods he could use. (6 marks)

d) The following table shows activities and their duaration for a software project. Use it to answer the question that follows.

| Activity | Predecessor | Duration (days) |
|---|---|---|
| A | - | 3 |
| B | A | 4 |
| C | A | 2 |
| D | B | 5 |
| E | C | 1 |
| F | C | 2 |
| G | D,E | 4 |
| H | F,G | 3 |

Draw a network diagram for the project. (7 marks)

**QUESTION FIVE (20 MARKS)**

a) Explain **two** tools used to record system requirements. (4 marks)

b) A student is required to lead a software development team. Discuss **three** aspects that he needs to consider in order to have a quality project. (6 marks)

c) Insiders are the greatest threats to information systems. Explain **three** reasons likely to have contributed to this scenerio. (6 marks)

d) Distinguish between *physical* and *logical* methods of data security. (4 marks)