



# **MACHAKOS UNIVERSITY**

**University Examinations for 2020/2021 Academic Year**

**SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY**

**FIRST YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR**

**BACHELOR OF SCIENCE (COMPUTER SCIENCE)**

**BACHELOR OF SCIENCE (MATHEMATICS AND COMPUTER SCIENCE)**

**SCO 100/SMA 190: FUNDAMENTALS OF COMPUTING/INTRODUCTION TO  
COMPUTERS**

**DATE: 24/3/2021**

**TIME: 2.00-4.00 PM**

---

**INSTRUCTION: Answer Question ONE and any other TWO Question**

## **QUESTION ONE (30 MARKS)**

- a) Draw a well labeled block diagram of a digital computers (4 marks)
- b) State any three topologies and discuss the design, advantages and limitation of any one of them (8 marks)
- c) Compute the following computer numbering: (12 marks)
  - i.  $102_{10}$  to binary
  - ii.  $34_{10}$  to hexadecimal
  - iii.  $19_{10}$  to octal
  - iv.  $110101_2$  to decimal
  - v.  $406_8$  to binary
  - vi.  $4E_{16}$  to decimal
- d) State any THREE input devices and any THREE output devices describing how these devices are used (6 marks)

## QUESTION TWO (20 MARKS)

- a) Differentiate RAM from ROM stating their characteristics, functions and differences (4 marks)
- b) Discuss the impacts of computers to the society (6 marks)
- c) Using a diagram, discuss how computer memory is organized into hierarchy (5 marks)
- d) State factors that determine the performance of computers (5 marks)

## QUESTION THREE (20 MARKS)

- a) Describe future generation computers (4 marks)
- b) Why would you prefer using mails over telephone in an organization (6 marks)
- c) Why do Kenyans shy from buying goods online (5 marks)
- d) Describe the use of the following application programs with an example for each of them. (6 marks)
  - i. Spreadsheet
  - ii. Database management system
  - iii. Word processor

## QUESTION FOUR (20 MARKS)

- a) Differentiate volatile from non-volatile memory and give an example for each category (4 marks)
- b) Why is it that most offices have impact printers (6 marks)
- c) Discuss the categories of computer networks (5 marks)
- d) By use of computer technology people can work from the comfort of their homes, what are the problems associated with this practice to both the companies and the professionals (5 marks)

## QUESTION FIVE (20 MARKS)

- a) What **four** major factors would you consider when purchasing a printer (5 marks)
- b) Operating system is the system software, what is an operating system? Discuss its roles in compute (5 marks)
- c) Discuss the classification of computers based on purpose (4 marks)
- d) Discuss how the government can use computers to serve its citizens (6 marks)