



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)