



(The University of Choice)

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST) MAIN  
CAMPUS  
UNIVERSITY EXAMINATIONS  
2022/2023 ACADEMIC YEAR  
FIRST YEAR FIRST SEMESTER EXAMINATIONS  
FOR THE DEGREE  
OF  
BACHELOR OF SCIENCE, BACHELOR OF ARTS  
BACHELOR OF EDUCATION**

**COURSE CODE: BIT 113**

**COURSE TITLE: FUNDAMENTALS OF COMPUTING**

**DATE: 22/12/2022**

**TIME: 3.00 – 5.00PM**

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**INSTRUCTIONS TO CANDIDATES**

Answer question ONE (compulsory) and any TWO questions

This Paper Consists of 4 Printed Pages. Please Turn Over ►

### QUESTION ONE: COMPULSORY QUESTION

[30 MARKS]

- (a) Define the following terms as used in Computer [4 Marks]
- (i) Bus
  - (ii) Network
  - (iii) Memory
  - (iv) Hardware
- (b) State any **THREE** disadvantages of computers. [3 Marks]
- (c) Briefly explain any **THREE** functions of the Operating System in a Computer. [3 Marks]
- (d) Briefly explain **THREE** reasons why you would advise an organization to network its' computers. [3 Marks]
- (e) Explain the following computer specification: **Intel 2.40GHz, 200GB, 512MB, 15"** [3 Marks]
- (f) Convert the decimal number **235** to its binary equivalent. [4 Marks]
- (g) How would the number **807** be represented in Binary Coded Decimal (BCD) scheme. [3 Marks]
- (h) State any **THREE** differences between RAM and ROM [3 Marks]
- (i) Differentiate between **guided** and **unguided** communication media. [4 Marks]

### QUESTION TWO (COMPUTER ORGANIZATION)

[20 MARKS]

- (a) Name **TWO** input and **TWO** output devices. [2 Marks]
- (b) What is virtual memory as used in a computers. [2 Marks]
- (c) With examples, differentiate between **soft copy** and **hard copy** output. [4 Marks]
- (d) State and explain **THREE** components of a Central Processing Unit (CPU). [3 Marks]
- (e) Briefly explain **THREE** types of buses found in a Computer. [6 Marks]
- (f) Briefly explain any **THREE** main characteristics of memory [3 Marks]

### QUESTION THREE (DATA REPRESENTATION)

[20 MARKS]

- (a) Briefly explain **THREE** commonly used coding schemes in a computer [3 Marks]

- (b) Convert the decimal number **245.7125** to binary [4 Marks]
- (c) Convert the binary number **101110.1010** to decimal [4 Marks]
- (d) Convert the Octal number **2735** to Hexadecimal number system. [3 Marks]
- (e) Convert hexadecimal number **AB2F** to binary [2 Marks]
- (f) Perform the following binary arithmetic as directed
- (i) **1000110** – **1011** using 2's compliment [2 Marks]
- (ii) **11001** + **110** binary addition [2 Marks]

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**QUESTION FOUR (DATA COMMUNICATION) [20 MARKS]**

- (a) Differentiate between **Internet** and **World Wide Web (WWW)** [2 Marks]
- (b) [4 Marks]
- (c) Briefly explain any **TWO** reasons you would advise an organization not to network it's computers. [2 Marks]
- (d) With help a diagram, describe **bus** network topology. State **TWO** advantages and **TWO** disadvantages of **bus** network topology. [6 Marks]
- (e) Briefly explain **THREE** reasons why you would not use a star network topology to network university computers. [3 Marks]
- (f) Briefly explain **THREE** network challenges you are likely to experience while studying BIT113 online at MMUST. [3 Marks]

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**QUESTION FOUR (COMPUTER SOFTWARE) [20 MARKS]**

- (a) Differentiate between **Firmware** and **open-source** software [4 Marks]
- (b) Briefly describe any **FOUR** categories of application software. [4 Marks]
- (c) With examples, differentiate between operating system and device drivers. [4 Marks]
- (d) State any **FOUR** qualities of a good computer software. [4 Marks]
- (e) State any **FOUR** ways of one can commit software piracy. [4 Marks]