CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

CHUKA & EMBU

FIRST YEAR EXAMINATION FOR THE AWARD OF
CERTIFICATE IN COMPUTER SCIENCE

COSC 00101: COMPUTER SYSTEMS AND ORGANIZATION

STREAMS: CERT. COMP. SCI   **TIME: 2 HOURS**

DAY/DATE: TUESDAY 23/03/2021   **11.30 A.M. – 1.30 P.M**

INSTRUCTIONS:

- Answer question **ONE** and **TWO** other questions
- Do not write anything on the question paper
- This is a **closed book exam**, no reference materials are allowed in the examination room
- There will be **NO** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely.

SECTION A (ANSWER ALL QUESTIONS IN THIS SECTION)

QUESTION ONE (30 MARKS)

a. Define following Terms in Computer Systems: [6 marks]

　i. Language Processor

　ii. Quantum computing

　　iii. Computer System

b. Distinguish the following Terms: [12 marks]

　i. BIOS/Basic Input Output System vs. CMOS

　ii. System software and application software

　iii. Data Bus vs. Address Bus

c. Ruth, a student of the Business Faculty, wants to buy a new laptop, how would you advise her to check specifications of laptops she's interested in(Hint: Windows version, RAM, hddsk, GPU speed)   [4 marks]

d. Binary Number: 10101_2, Calculate it's Octal Equivalent [3 marks]

e. A student asks you why their Lenovo laptop keep shutting off suddenly without prompting, as a computer scientists, State THREE possible reasons for this malfunction [3 marks]

f. Express 1TB/Terabyte in Bytes [2 marks]

SECTION B (ANSWER ONLY TWO QUESTIONS IN THIS SECTION)

QUESTION TWO (20 MARKS)

a. Explain Four Functions of Operating Systems [8 marks]

b. Briefly Explain Four Benefits and Four Risks Of Using Computers In An Organization

[8 marks]

c. Explain the Functions Of The Following Softwares [4 marks]

    i. Anti-Virus

    ii. Clipboard Managers

    iii. Memory Testers

    iv. Package Managers

QUESTION THREE (20 MARKS)

a. Briefly Explain the Data Processing Cycle [6 marks]

b. Briefly Explain the Following: [8 marks]

    i. PROM (Programmable read-only memory)

    ii. EPROM (Erasable Programmable read only memory)

    iii. EEPROM (Electrically erasable programmable read only memory)

    iv. Virtual memory

c. List and Provide Examples of the THREE general categories of Peripheral devices [6 marks]

QUESTION FOUR (20 MARKS)

a. Solve the Following:

    i. Compute $1'^s$ and $2'^s$ complements of the following binary: 10011110 [3 marks]

    ii. Hexadecimal Number: 15_{16}, Calculate the Base 2 Equivalent [3 marks]

    iii. 0.375 base 10 to binary [3 marks]

    iv. Convert 5746_8 to base 10 [3 marks]

b. What is ASCII, List 3 Sections and Their Related Codes That Make up ASCII Table [8 marks]

QUESTION FIVE (20 MARKS)

a. Outline Classification of Computers by Generations   [10 marks]

b. Explain & List Functions Of the Following Computer Components

   i. Input unit   [2 marks]

   ii. Central Processing Unit (CUP)   [6 marks]

   iii. Output Unit   [2 marks]