

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]
- Language Processor
 - Quantum computing
 - Computer System
- b. Distinguish the following Terms: [12 marks]
- BIOS/Basic Input Output System vs. CMOS
 - System software and application software
 - 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]

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- 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]
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