

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE

COSC 0101: INTRODUCTION TO COMPUTER SYSTEMS

STREAMS: DIP. COMP. SCI

TIME: 2 HOURS

DAY/DATE: TUESDAY 05/08/2025

8.30 A.M. – 10.30 A.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

QUESTION ONE (30 MARKS)

- Define the following terminologies as used in computer software
 - Assembler (2 marks)
 - Compiler (2 marks)
 - Interpreter (2 marks)
- Using an illustrative diagram, describe the functional components of a programmable machine based on the von Neumann model (6 marks)
- Explain the two key operations on memory (3 marks)
- Perform the following operations (Show your working)
 - Add binary number 101110 to 111011. (2 marks)
 - Convert 45_{10} to binary. (2 marks)

- e. Highlight four characteristics of Third-generation computers. (4 marks)
- f. Explain three uses of internet (3 marks)
- g. Explain the difference between the following terms.
 - h. System software and application software (2 marks)
 - ii. RAM and ROM (2 marks)

SECTION B

QUESTION TWO (20 MARKS)

- a. Explain the advantages of using computers in the society [10 marks]
- b. State and explain classifications of computers according to functionality [6 marks]
- c. State four output devices in a computer system [4 marks]

QUESTION THREE (20 MARKS)

- a. A bus is group of lines that serves as a connection path for several devices. Explain three main types of system buses. (6 marks)
- b. Differentiate between SRAM and DRAM and with reasons state which one is suitable for making cache memory (4 marks)
- c. Explain two-character coding schemes (4 marks)
- d. Convert the binary number 1011010 to: (6 marks)
 - i. Decimal
 - ii. Octal
 - iii. Hexadecimal

QUESTION FOUR (20 MARKS)

- a. Mark is the head of ICT in Teknologia institution. He is required to purchase some computers by the institution. Explain five factors that he will consider when purchasing the computers. (5 marks)
- b. Describe four main steps involved during the execution process by the CPU (8 marks)
- c. Explain three kinds of registers found in CPU. (6 marks)
- d. What units are used in measuring CPU clock speed (1 mark)

QUESTION FIVE (20 MARKS)

- a. Explain five functions of an operating system in a computer system. (10 marks)
 - b. Distinguish the following terms in regard to computer processing.
 - i. Multiprogramming (2 marks)
 - ii. Multiprocessing (2 marks)
 - iii. Multitasking (2 marks)
 - iv. Multithreading (2 marks)
 - v. Multiuser (2 marks)
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