

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**FIRST YEAR EXAMINATION FOR THE AWARD OF DIPLOMA IN
COMPUTER SCIENCE**

COSC 0101: INTRODUCTION TO COMPUTER SYSTEMS

STREAMS: DIPLOMA COMPSCI Y1S1

TIME: 2 HOURS

DAY/DATE:..... **.....**

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.
- Marks are awarded for clear and concise answers.

SECTION A: ANSWER ALL QUESTION IN THIS SECTION

QUESTION ONE (30 Marks)

- a. What are the main features of von Neumann architecture?[4 mks]
- b. What 3 parts make up the CPU?[3 mks]
- c. What is a software and list at least TWO types of software?[4 mks]
- d. What is representation of data in computer system?[2 mks]
- e. What is a number system in computers and List 2 common types?[3 mks]
- f. Work out 2's complements of binary number 010111.1100 is [2 mks]
- g. List and Explain THREE functions of Operating Systems[4 mks]
- h. What is Integer representation in internal data representation[2 mks]
- i. What is difference between RISC and CISC?[3 mks]
- j. Name 3 types of storage devices?[3 mks]

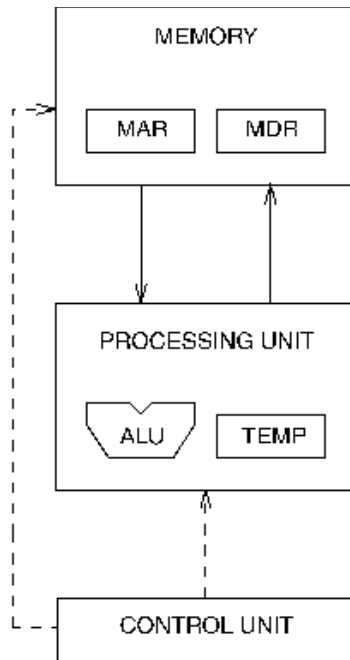
SECTION B (Answer any TWO questions)

QUESTION TWO (20 Marks)

- a. List FIVE components of a contemporary personal computer system and EXPLAIN their functions[10 mks]
- b. SOLVE the following [10 mks]
 - i. Represent 23 in the binary number system[2 mks]
 - ii. binary multiplication $111_2 \times 10_2$ is[2 mks]
 - iii. 100101_2 to octal[2 mks]
 - iv. 10011101 to hexadecimal number[2 mks]
 - v. The range of the numbers which can be stored in an eight-bit register is[2 mks]

QUESTION THREE (20 Marks)

- a. This is a Von Neumann Machine with TWO Registers,explain it's read and write steps [5 mks]



- DEMONSTRATE MEMORY OPERATIONS OF A VON NEUMANN MODEL [10 Marks]
- With use of a diagram, show working of Von Neumann MAR/Memory Address Register circuitry [5 mks]

QUESTION FOUR (20 Marks)

- List and explain FOUR applications of Embedded systems in society[8 mks]
- List TWO methods of job scheduling done by operating systems AND explain THREE techniques of EACH scheduling type[8 mks]
- Suppose that $n=8$ and the binary representation is 0 000 0000B.what is the integer [4mks]

QUESTION FIVE (20 Marks)

- What is external data representation and marshaling?[2 mks]
- Every day over a billion of people connect to the internet. What are they doing? ,provide four common uses and examples[8 mks]
- BRIEFLY OUTLINE the History of computers by generations[10 mks]

