

CHUKA

UNIVERSITY



UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE

COSC 0110: COMPUTER ARCHITECTURE

STREAMS: DIP. COMPSCI Y1S1

TIME: 2 HOURS

DAY/DATE: FRIDAY 14/12/2018

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.
- Marks are awarded for clear and concise answers.

QUESTION ONE (30 Marks)

- a. With the aid of a diagram, describe the processor's instruction cycle (6 Marks)
- b. Explain the difference between each of the following:
 - i. Computer Architecture and Computer Organization (4 Marks)
 - ii. Structure and Function (4 Marks)
- c. State and explain two elements of a machine instruction (4 Marks)
- d. Giving examples, explain the term Embedded Systems (4 Marks)
- e. Use a diagram to show the possible organization of an embedded system (4 Marks)
- f. Giving **TWO** examples, define the term embedded systems (4 Marks)

SECTION B (Answer any TWO questions)

QUESTION TWO (20 Marks)

- a. Discuss the function of FOUR major components of a processor (8 Marks)
- b. State and explain the FOUR main structural components of a computer (8 Marks)
- c. List four main elements of an assembly language program. (4 Marks)

QUESTION THREE (20 Marks)

- a. Using diagrams, describe the process of a two-stage instruction pipeline (8 Marks)
- b. While using diagrams, explain the importance of cache memory (8 Marks)
- c. Give two examples of primary memory (4 Marks)

QUESTION FOUR (20 Marks)

- a. Computer memory can be classified according to its key characteristics. State and briefly explain the classification of memory according to the location and access method. (12 Marks)
- b. State and explain **FOUR** common addressing techniques. (8 Marks)

QUESTION FIVE (20 Marks)

- a. State and explain six major advances in the area of computer organization and architecture since the birth of the computer. (12 Marks)
 - b. State and explain two types of parity checking in error detection (4 Marks)
 - c. With the aid of diagrams, explain the operation of each type in **b**) above (4 Marks)
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