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KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2024/2025 ACADEMIC YEAR
FIRST YEAR, SECOND SEMESTER EXAMINATION
FOR THE BACHELOR OF SCIENCE IN COMPUTER SCIENCE
KCS 103 – INTRODUCTION TO COMPUTER ORGANIZATION

Date: 17TH April 2024
Time: 8:30AM – 10:30AM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

a) Define computer organizations and explain its significance in the field of computing (6 Marks)
b) Explain the role of a cache memory in a computer system and how it improves overall system performance (6 Marks)
c) Describe the key components of a computer system and their functions (6 Marks)
d) Discuss the difference between von Neumann architecture and Harvard architecture (6 Marks)
e) Describe the process of data transfer between the Central Processing Unit (CPU) and memory (6 Marks)

QUESTION TWO (20MKS)

a) Describe the operations and functionalities of an ALU (Arithmetic Logic Unit) in a CPU (6 Marks)
b) Explain the different types of primary memory in a computer system, including their characteristics and functionalities (8 Marks)
c) Discuss the concept of pipelining and its advantages in computer organization (6 Marks)

QUESTION THREE (20MKS)

a) Describe the different input-output (I/O) techniques used in computer organizations and in each technique cite an example (8 Marks)
b) Discuss the concept of interrupts in computer organizations and their significance (6 Marks)
c) Explain the concept of parallel processing and its relevance in computer organizations (6 Marks)

QUESTION FOUR (20MKS)

a) Discuss the different types of buses in a computer system and their functions (8 Marks)
b) Describe the types of instructions, including data movement, arithmetic, and control flow (6 Marks)
c) Explain the relationship between Instruction Set Architecture (ISA) and machine language (6 Marks)

QUESTION FIVE (20MKS)

a) Describe various challenges that computer professionals face in designing energy-efficient computer systems (6 Marks)
b) Discuss security considerations in computer organization design (6 Marks)
c) Elucidate on clear ethical and societal implications associated with computer organization design (8 Marks).