KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2022/2023 ACADEMIC YEAR
FIRST YEAR, FIRST SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE
(MATHEMATICS AND COMPUTER SCIENCE)

Date: 11th April, 2022
Time: 2.30pm –4.30pm

KCS 103 - INTRODUCTION TO COMPUTER ORGANIZATION

INSTRUCTIONS TO CANDIDATES

ANSWER **QUESTION ONE (COMPULSORY)** AND **ANY OTHER TWO** QUESTIONS

QUESTION ONE (30 MARKS)

a)   Convert the following number system as follows;

     i) 1001011101_2 to a hexadecimal number.

     ii) $B4C6_{16}$ to a binary number.

     iii) 574031_8 to a binary number.

     iv) $E57_{16}$ to octal.   (12 marks)

b)   Differentiate between Computer Organization and Computer Architecture
                                                                                                                        (4 marks)

c)   By use of a diagram, describe the user's view of a computer system.
                                                                                                                        (5 marks)

d)   Explain the three operations that are being repeated by the control unit of a processor.
                                                                                                                        (3 marks)

e)   By a use of a diagram, describe how the Von Neumann Computer Model and describe how works.
                                                                                                                        (6 marks)

QUESTION TWO (20 MARKS)

a)   Explain four reasons why programmers use of binary system in system computing.
                                                                                                                        (4 marks)

b)   Explain the three main functions played by the central processing unit of a computer system.
                                                                                                                        (6 marks)

c)   State two types of system interruption and explain what happens to a processor when an interruption of a signal is generated in any computer system.
                                                                                                                        (10 marks)

QUESTION THREE: (20 MARKS)

a) Briefly state and explain the two units of a processor in a computer system.

(4 marks)

b) What is the role of cache memory in a computer system? Explain its advantages.

(6 marks)

c) Briefly explain any five differences between microcontroller and microprocessor.

(10 marks)

QUESTION FOUR (20 MARKS)

a) By use of a diagram, name and explain different components of a typical block of a central processing unit.

(10 marks)

b) Describe clearly on how data is stored in digital computer systems.

(10 marks)

QUESTION FIVE (20 MARKS)

a) Highlight any four characteristics of random access memory.

(4 marks)

b) What is a number system? State and explain the two major categories that classify the number systems.

(6 marks)

c) Draw and explain the hierarchy of languages in the architecture of programmer's view of a computer system.

(10 marks)